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Morgan and Vail Will Obey the Law.

Casper E. Yost wrung a dry smile from the lips of every telephone man a year ago. As president of the Nebraska Bell licensee company, he had made a deal to buy some Independent companies down the river from Omaha. Frank H. Woods objected, and the Supreme Court of Nebraska called Mr. Yost's attention to the Junkin anti-trust law, by an injunction. Mr. Yost told a newspaper man: "We will obey the law"—and the whole telephone world saw the joke.

The sensitive disposition first shown, among Bell presidents, by Mr. Yost, seems to be contagions. Vail has caught this new idea, they say, and so has Morgan, or at least Davison, the Morgan director of A. T. & T., and the boss of the Morgan properties in Ohio.

In plain words, **the Morgan properties in Ohio are not to be merged with the Bell system this year,** nor are any other big Independent exchanges doing an interstate business to be bought even if their owners are willing to have their cupidity tempted.

TELEPHONY has information which enables it to make this prediction with the utmost confidence. And no injunction was required to produce this decision among the high powers of telephone finance. They are becoming sensitive, as we said before. Now even Vail decides to obey the law before his house is surrounded.

Public opinion is the real instrument that brought the A. T. & T. people to their senses. Perhaps the new men in the upper ranks have a keener scent for approaching trouble than the old, shell-backed dynasty, accustomed to override when they could not deceive. Be that as it may, they have decided that to break up the ranks of the Independents, buy out either promoters or legitimate investors at fat prices, and as a result overload and underpay their employes and "soak" the public with high rates, is a dangerous business. If the piper should present his bill, it would be too high for the fun of listening to the enticing tune of "One Wire Tapping Everybody's Pocketbook."

The government cannot be relied upon to protect the telephone trust much longer. Winthrop Murray Crane, the telephone trusts' big politician, who was expected to succeed to Aldrich's position as leader of the Senate, is the unfortunate victim of the over-enthusiasm of the gang of "special interests" who have been making him provide the cover for their schemes. His crowd at Washington is getting weaker, instead of stronger.

Even the crooked politicians are afraid of public opinion in its present sensitive condition. They are like the dishonest jurymen in a recent case. Things had been fixed for an acquittal or disagreement. But the honest men said —"if anyone votes for an acquittal, we'll know why!" And the crooks didn't dare stay bought.

The telephone trust is beginning to doubt the strength of its protection. Adverse public opinion has been much in evidence where mergers have been discussed. Gov. Aldrich, of Nebraska, vetoed a merger bill; Harmon, of Ohio, hid when one awaited his signature, and let it become a law without his name; many direct tests of public opinion have gone against the Bell interests; they have been powerless to deal with legislatures; have repeatedly lost big cases before courts and commissions. In fact, the Bell officials are beginning to realize that they are in charge of what is at once **the most offensive, and the most vulnerable of the trusts.**

They are to stop buying Independent properties that could bring them up against the Sherman law, because they realize that they could never escape if they should arouse public opinion to demand action of the goverment. Evidence would be forthcoming in irresistible volume. Rest assured that the Bell attorneys have carefully read all the sections, like the following from the U. S. Supreme Court's opinion in the tobacco trust case:

"Indeed the history of the combination is replete with the doing of acts which it was the obvious purpose of the statute to forbid, demonstrative of the existence from the beginning of a purpose to acquire dominion and control of the tobacco trade, not by the mere exertion of the ordinary right to contract and to trade, but by methods de-

vised in order to monopolize the trade by driving competitors out of business, which were ruthlessly carried out upon the assumption that to work upon the fears or play upon the cupidity of competitors would make success possible."

The two recent trust case decisions are the powder magazine over which the telephone trust is running its business. And it fears to risk a clash with public opinion that would reveal the whole pitiable weakness suggested by the voluminous excuses and acknowledgments of terror put out last spring by Mr. Vail in the guise of a report to stockholders. holders.

The Meaning of the Missouri Decision.

The decision of the Supreme Court of Missouri, of which a digest appears upon other pages, will be carefully studied in every state. It establishes a principle which has been in the minds of leaders in the Independent industry for years.

To convey an idea of its practical meaning to telephone men, we can do no better than to give the words of Mr. A. F. Adams, who says:

"I think the essence of the opinion is that *the Bell company, in attempting to break these contracts is seeking to destroy the continuity of its competitors' service, and that any member of this continuous system formed through the agency of these contracts will have the right to enforce the provisions of these contracts by mandatory injunction, and recover damages for any violation thereof."*

Service Testing by "Special Commissioner" in Australia.

The government owns the telephones in Australia—has a monoply. That may explain the following note from the current issue of the London *Electrical Review*:

"In order to test the working of the Sydney telephone service, a special commissioner has been appointed to spend a month in calling subscribers from all parts of the district, and to report on the time taken in answering calls, the accuracy of the service, and other points connected with the operation of the exchanges."

British contemporaries are courteously informed that this will be considered a joke by American readers who are posted on traffic methods.

A "Semi-Investment Proposition."

In answer to an inquiry regarding investment stocks some sapient gentleman on the *Wall Street Journal* replies: "American Telephone & Telegraph stock, which pays 8 per cent. dividends, is considered one of the highest class public utility issues on the list. Around present prices it looks like a good business man's semi-investment proposition for a long hold."

"Semi" is certainly the right word in the present instance, or possibly something even a bit short of "semi." In view of the slump of fourteen points during the last few weeks, from 152 just preceding the new fifty million issue, to the present 138, a cautious adviser might be led to still further qualify his endorsement of "one of the highest class public utility issues on the list."

One might hazard a guess that the outraged Frenchmen who admitted the stock to the Bourse on one day and learned the next of the new issue, of which they were not formally advised, also consider it a "semi-investment," with grim emphasis on the "semi." The alacrity with which they cancelled all the first day's trades when their shabby treatment was made known also gave evidence of their strong and abiding confidence in the security.

Probably the average French investor has now concluded that for a short "hold" or a long one, the best place to have A. T. & T. stock, like a boil, is on the other fellow. When will his American brother wake up?

The Superiority of American Independent Equipment.

The rush of Independent telephone development at home has kept the manufacturers so busy that until recently none of them has sought foreign business. And even now the goods of Independent manufacturing houses are sought from abroad more frequently than the manufacturers seek orders. If it were not that telephone development, in the American conception of the term, is only beginning in most foreign countries, this would be a reflection upon American enterprise. But the facts, as they exist, reflect credit upon the manufacturers of telephone goods which are able to make their own market, as well as upon the officials abroad who have been so enterprising as to seek out the best, of their own initiative.

To take an interesting example, consider the case of Jamaica. Although near the United States, it is a British possession, completely under British domination, in matters governmental, social, and industrial. Everyone knows how rigorously British trade tends to flow in distinctly British channels yet Jamaica's imports of telephone and telegraph apparatus in the last year covered by issued government reports were:

From Great Britain	£275
From United States	569
From other countries	15
Total	£859

The values are so trifling that they serve only to indicate the opportunity for growth. But their relation is certainly significant of the extent to which the superiority of American telephone equipment is understood abroad.

Tesla's Big Predictions For Wireless Telephone.

In a lecture before the New York Section of the National Electric Light Association, recently, Nikola Tesla said: "The air will be my medium, and I will be able to transmit energy of any amount to any place in the world. I will also be able to send messages to all parts of the world, and I will send words out into the world which will come out of the ground in the Sahara Desert with such force that they can be heard for fifteen miles around.

"I also hope to set up a central wireless telephone station whereby there will be a force of 1,000,000-horse power behind each word uttered into my instrument, and in which distance will play no hindrances whatever. Many hundreds of people will be able to talk at the same time and without any interference with each other."

While we are waiting for Mr. Tesla to make good, we can all go along and run our business in the good old way, and reach the Sahara Desert, when we want to, by riding on a humpy, lumpy camel.

"LEST WE FORGET!"

Several years ago the Bell managers made up their minds to try a new way of cornering the business. They decided that they would buy the chief Independent manufacturing plants, not openly, but secretly, and trap the operating companies in a manner that, had it succeeded, might have resulted in serious damage. (Sale of leading company cited.) The facts were dragged into the open through a suit instituted by some of the minority stockholders, who sought to set the sale aside. The pleadings laid bare a plot that, for sheer business immorality and mean rascality, has not often been equaled.—Fight with an Octopus.

Johnston Director of United States Company.

The reorganization of the United States Telephone company in accordance with the plan of the Morgan interests was completed this week with the election of G. R. Johnston, of Columbus, general manager of the company, and William F. Burdell, also of Columbus, as directors. They were chosen in place of Clarence Brown, of Toledo, who represented James A. Brailey in the purchase of the property from the Everett Moore interests, and of Herman Stifel of St. Louis, backer of the Continental Telephone & Telegraph Co. All other officers and directors of the company were re-elected.

Ft. Wayne Home Regular Dividend.

Besides declaring its regular semi-annual dividend of 3 per cent. on its outstanding stock and providing for bond interest the Home Telephone Co. has set aside 2 per cent of its bond issue as a sinking fund to take up the bonds.

SOME SALIENT POINTS IN DECISION OF MISSOURI SUPREME COURT

See Opposite Page

There is but little use in mincing words about the real issues in this case. It is apparent upon the face of things, in view of state history, of which we must take notice, that the real contest is between the Kinloch Telephone Co. upon the one side and what is usually known as the Bell company upon the other. * * * The court does not know less of the developments in the state than does the average citizen. The average citizen knows that there was a time when the Bell company had no competitor in this state. The average citizen knows that local telephone systems were organized in the towns and country districts. They likewise know that, there being no competition in long distance service, it was a matter of indifference with the Bell company whether they permitted physical connection of such lines with their lines. In many, if not most, places no physical connection was tolerated. This is general knowledge in this state. It is also general knowledge that later the Kinloch company, after a time, succeeded in interesting most of the divers local companies, and put in long distance service in the state in competition with the Bell company. * * * This seems to have been accomplished while the Bell company, in a spirit of independence and supreme indifference, thought itself escure.

That the contract involved in this case was one of a number made during this period of developing competition to the Bell company is apparent. Time developed the fact that a farmer or merchant would not leave his farm or his store to talk through the long distance booth of one company located in the town, when he could connect at his farm or his store with another long distance telephone company reaching the same place. When this dawned upon the other competing company, independence became activity, and indifference was wrought into a desire to serve all the public by a direct and physical connection.

The Sarcoxie company, now physically connected with the Bell company, says the contract is void, although the consideration has been fully paid and performed by the Home Telephone Co. By the terms of the contract the Home company was to build a line from Carthage to Sarcoxie. This outlay has been made and the Sarcoxie company has enjoyed the benefits of this expenditure. Unless flagrantly violative of law, good conscience would demand the fulfillment of the agreement.

That this contract was not intended to stifle competition in long distance telephone rates, at the time of its making, is apparent from the face thereof, as well as from the history detailed (above). That the purpose was to meet competition clearly appears. * * * The very face of the contract shows what the known public history is, that the object of these contracts connecting the local companies with the Kinloch system was for the very purpose of competition and not for monopoly. * * * But beyond all this, these connections in the end furnished one continuous, competitive line with that of the Bell company, and this competition might be broken down, if it shall be said that physical connection with the Bell company must be made by all companies having connection with the Kinloch system. The contention has never been in this court and it is a matter of vital importance. The Bell company is apparently seeking to reap where it hath not sown, and this under the guise of law.

The opinion (of the lower court) overlooks the point that if the contract is declared void, the plaintiff has no status with the Sarcoxie company and the result would be to leave the Bell company in full non-competitive control of long distance business. That such is the desire of the Bell company can well be gathered.

The contract under consideration shows that the two companies were occupying different fields of service. It shows that each desired to extend its usefulness. Such could be done by joining the two lines and such other lines as might be connected with either. It would appear that the Home company had long distance connections with the Kinloch system. Monopoly is the cry of the Sarcoxie company in this case. The cry would be feeble if it came from that company alone, but vigor and volume is added to the cry by reason of the physical connection with the Bell company. It cannot be said that the joining of the two telephone lines operating in different fields creates a monopoly or stifles competition. Such action only broadens the use of both lines.

This section (Section 1255, R. S. 1899) does not require physical connection between telephone lines. It does require such company to receive all messages from other telephone or telegraph lines and transmit them, as it likewise requires it to receive all messages from individuals. This does not mean that such corporation must yield to a physical connection with its lines by a competitive company and permit the use thereof in that way. * * * In other words, one telephone company, without the consent of the other, cannot take charge of and use the instrumentalities of such other company by compelling physical connection therewith. The statute in question never so contemplated.

To be plain in language, such a contention, if sustained, would absolutely deprive a corporation of all property rights in its own business. Such contention, if sustained, would give the Kinloch company the right to force physical connection for its own business, with the Bell company at common points and thereby reach territory never touched, nor expected to be touched by the Kinloch company, and *vice versa*. If the Kinloch company should by suit seek to compel the Bell company to allow it physical connection with its lines reaching part of the country not occupied by the Kinloch company the argument in this court would be quite contrary to the one now advanced, yet the exact question would be involved. To hold that the Kinloch company could have built its lines from the east of the city of St. Louis, and then under our laws could have compelled a physical connection with the Bell company lines, and used the same for forwarding their own business, to my mind is preposterous. It would be a virtual confiscation of property rights.

As before stated, the defendant has enjoyed the benefits of the contract and evidently through its new friend is now pleading public policy. Such pleading comes with little grace in a court of equity. The matter of remedy is not seriously questioned and if it were we could not say that equity should not interfere under the statements in the bill. The cause should be reversed and remanded to be proceeded with under the views herein expressed. It is ordered so. All concur. W. W. Graves, J.

Missouri Supreme Court Sustains Competitive Principle

In Broad and Forceful Decision, Highest Judicial Body in State Holds Exclusive Interconnection Contracts Between Independent Companies to be Valid, and Defeats Bell Interests in Their Effort to Disrupt Independent System—Probable Effects of Ruling

In a decision of the utmost importance, just handed down by the Supreme Court of Missouri, that body has unanimously upheld the validity of an exclusive interconnection contract executed by Independent companies, and framed for the express purpose of preventing either party to it from connecting with the Bell lines.

Not only was the legality of the contract established, but the Bell interests were criticised in no uncertain terms by the court for backing the defendant company in so lame a cause, and one so palpably against public policy and the laws of the state.

The defendant sought to have the contracts declared invalid as a combination in restraint of trade but the court held that the contract, so far from being in restraint of trade, furthers competition, saying: "These connections in the end furnished one continuous, competitive line with that of the Bell company, and this competition might be broken down, if it shall be said that physical connection with the Bell company must be made by all companies having connection with the Kinloch system. The contention has never been in this court and it is a matter of vital importance."

"The Bell company," continued the court, "is apparently seeking to reap where it hath not sown, and this under the guise of law." And, at the close, the court said: "As before stated, the defendant has enjoyed the benefits of the contract and evidently, through its new friend (the Bell company), is now pleading public policy. Such pleading comes with little grace in a court of equity."

It is held in some quarters that this decision will militate against, if not absolutely prevent, the enactment of any statute in Missouri providing for compulsory physical connection, as a law of that character would nullify the contracts which have just been declared legal. If this be so, the Independent companies of the state are more strongly entrenched than ever before, and any proposed legislation looking to either merger or compulsory connection of competing companies cannot now arise.

The important portions of the decision are printed on the opposite page. The history of the case, in which the Home (Independent) Telephone Co., of Joplin, was the plaintiff, and the Sarcoxie Telephone Co., of Sarcoxie, was the defendant, is, briefly, as follows:

In 1905, the Kinloch (Independent) Long Distance Telephone Co., of St. Louis, the Kansas City Home and Long Distance (Independent) companies, and the companies comprising what is known as the Gary System, adopted a standard form of interconnection contract—a form which has been also used in other states. The purpose of this contract was to perfect the formation of a continuous Independent telephone system in Missouri, which should operate unitedly in competition with that of the Bell companies.

The contracts were drawn with the intention of making it impossible for the Bell system to connect with any of the parties to the contracts. They were also planned to cover the possible sale of an Independent property, so that the new owners, even if they should be the Bell interests, would be prevented from breaking the continuity of the state-wide Independent system thus established. The contracts agreed upon, the three larger organizations executed them with smaller concerns throughout Missouri.

When this had been accomplished in a comprehensive manner, the Bell telephone companies suddenly awoke to the fact that a competing system far stronger than their own had been established in the state. As is very largely the case elsewhere, the local companies dominate the local situation almost universally. This, taken in connection with the splendid quality of the Independent long distance service, afforded the Independents every advantage.

As soon as the Bell recognized the situation, it began making every effort to disrupt the Independent organization by offering extraordinary inducements to companies at strategic points to connect with the Bell lines. That is, it made connections, in violation of the contracts mentioned, wherever it was possible, but refused to connect where such connection would not injure the larger Independent concerns. The arrangements which it made in these cases were sufficiently attractive financially to induce the local Independent to switch as much business to the Bell lines as the latter could deliver.

Several of the Kinloch's connecting companies violated their agreement and joined with the Bell lines also. Later the Grandy & Neosho company, a connection of the Joplin Home, did the same thing. The Joplin company secured an injunction, which the Bell helped the local company to defend. The circuit court held the exclusive contract void, and in violation of the state anti-trust law. This opinion was sustained by a divided bench in the court of appeals, at St. Louis.

The Joplin Home then began the suit against the Sarcoxie company, which had also violated its exclusive contract, bringing the action in the circuit court, asking for $10,000 damages, an injunction restraining the defendant company from further violation, and pleading the necessary constitutional questions which took the case direct to the supreme court of the state. The decisions of the lower courts were reversed and the cause remanded to be proceeded with along the lines laid down by the supreme bench.

The case has been strenuously fought by the Bell and as strenuously pushed by the Independents, who have now won a sweeping victory for competition.

United States Supreme Court Sustains Lower Court in Damage Award Against Western Union.

An opinion rendered by Judge John H. Ingram, of the Law and Equity Court, on the constitutionality of the Virginia penalty statute applying to interstate telegrams, has been sustained by the United States Supreme Court. The case originated in the Law and Equity Court of Richmond, Va., three years ago.

Crovo & Crenshaw instituted suit against the Western Union Telegraph Co. to recover $100 damages, a business message sent by that firm from Richmond to Brockton, N. Y., having been delayed in delivery nine hours, through an error in the sending office. The operator transmitted the message to Brooklyn, N. Y., instead of to Brockton. The case was tried before Judge Ingram and the plaintiff concern was awarded $100 damages. Counsel for the telegraph corporation appealed the case to the Virginia Supreme Court. That court upheld the verdict. The corporation lawyers then decided to carry the case to the United States supreme tribunal.

Seattle to Investigate Municipal Plant.

A resolution to have the city engineer prepare an estimate of the cost of installing an automatic telephone system as a municipal plant, has been recommended for passage by the Seattle, Wash., council franchise committee.

Demands Government Prosecution of Telephone Trust

Philadelphia Paper Declares Big Combination is Defying Not Only Public Sentiment, but Sherman Law as Well—Calls Attention of Administration, in Strong Editorial, to "Spirit of Greed, Avarice and Destructiveness" Permeating Bell Activities

Higher Rates Follow Merger in New York State.

Over 1,600 patrons of the New York (Bell) Telephone Co. in the Albion, Waterport, Kent, Holley and Barre territory, in New York state, have been notified that the company had increased the rental rate of private residence telephones from $12 yearly to $15, and of business telephones from $24 to

The company recently absorbed the Albion Home company in that territory, and as soon as the deal was consummated, the increase was announced, but the exact date on which it would be effective has not before been made public.

The company gives as one of its principal reasons for making the increase that it will give the added service of the 250 subscribers that were being served on the Home telephone service before; but, from the indications after the announcement of the raise was made, it may have several hundred less, as patrons kept the manager's office busy informing him that they would not pay the increase and asking to have the service discontinued if the increased rate was to stand.

Hutchinson Enjoying "Rotten" Service Under Monopoly

In a recent issue, the Hutchinson, Kans., *News* editorially denounces the service now being given in that city in a manner which would indicate that a monopoly of the telephone business is not, after all, the most desirable thing in the world. The *News* says:

"The telephone service furnished to the people of Hutchinson is generally described as 'rotten.' The splendid equipment, the "best in the state of Kansas," does not deliver the promised goods. The telephone users have been patient, hoping that the new switch board and the other paraphernalia would reach a better state of efficiency. Instead of that, the progress seems to be backwards and the telephone service is causing more people to lose their religion than the preachers can rescue. Nobody seems to know just what is the matter except that something is.

"This is a subject which the city commission should take up, for it can represent the public, and it has the power to secure reasonable service. The management may not know there is any trouble. One complaining telephone user was told that he was the only one in town who had complained.

"Those people who do have bad service should call up Manager McFarland and tell him about it, and then call Mr. Pollock, the commissioner of public utilities, and tell him. In that way the telephone people and the representatives of the people will know that something should be doing."

An Unfortunate Specimen of Press Bureau Work.

The Chicago (Bell) Telephone Co. was more than commonly unfortunate recently in one of its display advertisements, with which the company is endeavoring to discourage the spread of the Illinois Tunnel Company's Independent system in that city. It selected Des Moines, Iowa, as a specimen of the city which had become conscious of the "absurdity" of competition and which had voted for a merger of competing plants. *Public Service,* the Chicago periodical which TELEPHONY has already had occasion to notice as an originator of other items of Bell Press Bureau material, printed the following, which was reproduced by the Chicago Bell. How strikingly it agrees with the conclusions of Des Moines telephone users is indicated on the opposite page.

"THE FOLLY OF COMPETITIVE TELEPHONE SERVICE SHOWN."

"Des Moines, Iowa, is the latest of the important cities to break away from absurd telephone competition—absurd because it is the competition that divides and impairs an important public service, puts an additional and unreasonable tax on those who use the service from necessity, and brings heavy pecuniary loss to a class of investors who can ill afford to lose.

"The end of telephone competition in Des Moines has been brought about by the Iowa (Bell) Telephone Co. leasing the property of the Des Moines Mutual Telephone Co. The Iowa Telephone Co. will combine the better part of the Mutual's physical property with its own modern plant, make extensive and important improvements, and proceed to give the capital city of Iowa a unified and efficient service. Just before the lease was consummated a circular letter was sent out to the subscribers of both the Iowa and the Mutual exchanges asking if they desired consolidation, and 80 per cent. of the replies were favorable to the proposition, showing the sentiment of Des Moines telephone users to be almost unanimously against the dual system."

PHILADELPHIA DISPATCH CALLS

While the administration is investigating the steel trust, the Standard Oil trust, the sugar trust, the tobacco trust, and various other trusts, they are overlooking the biggest trust, and the nearest approach to absolute monopoly this country has ever produced, to wit: The wire trust, otherwise, the Bell Telephone-Western Union-Morgan combination.

This gigantic combination already controls the American Telephone & Telegraph Co., and all of its subsidiary Bell telephone companies; the Western Electric Co., a manufacturing concern, the Western Union Telegraph Co., together with all of its subsidiary news and news ticker service throughout the country. Even the Associated Press is at the mercy of this combination; they feel so sure of their position that in the face of the most hostile public sentiment that has existed for years, as evidenced by adverse legislation in many states, and regardless of the Sherman anti-trust law, they are going right ahead with their campaign of absorption and consolidation.

The president of the American Telephone & Telegraph Co., Mr. T. N. Vail, states in his annual report:

"Our policy in respect to the opposition or Independent telephone systems has been consistently followed throughout the year. Wherever it could be legally done, and with the acquiescence of the public, opposition companies have been acquired and merged into the Bell."

Following up this policy in December, 1910, and January and February, 1911, this combination undertook to absorb numerous Independent telephone companies through the Middle West, includ-

Insists on Use of Bell Telephones.

Before the acquisition of the farmers' telephone line in Waitsburg, Wash., by the Pacific (Bell) Telephone & Telegraph Co. rates for a four-party line were $1 a month and

Vicious Results Shown to Be Attendant Upon Monopoly

Reports from Various Sections of Country Where Bell Has Succeeded in Wiping Out Competition Repeat History of Past—Wretched Service, Higher Rates, Unreasonable Demands Rule Uniformly in Affected Territory—An Unintelligent Bit of Press Work

UPON GOVERNMENT FOR ACTION

ing Kansas City, St. Louis, Minneapolis, St. Paul and others. They desired to bring about this merger through an exchange of stock, but when their annual report came out, and the holders of the stock in the large and profitable Independent companies in the West were able to analyze the report and determine what the earnings were, they declined to make the exchange.

The next move was to absorb the Anglo-American Cable Co., thereby taking another competitor out of the field for European-American cable business.

If the administration is really looking for a dangerous and aggressive trust, they can find plenty to do to curb the wire trust. Of course, W. Murray Crane and his coterie of "stand-patters" in the Senate are all heavily interested in this combination, as is also Brother Charles, who is the principal factor in the Bell company, of Cincinnati.

This same spirit of greed, avarice and destructiveness permeates all of the Bell interests, and the Bell Telephone Co., of Pennsylvania is no exception. For years they charged the citizens of Philadelphia and vicinity exorbitant rates for inferior service, and only when forced to do so would they submit to improving the service or reducing the rates. They still charge ten cents for a call from hotels, when the regular rate is five cents from pay stations at all other points. About three years ago, they increased their long-distance rates, eliminating the half-rate charge at night, which was formerly in force.

At the present time they are increasing rates in those towns and boroughs in Pennsylvania and New Jersey where there is no competition.

for farmers who first put in the telephone $7 a year. Now all over must certain limits pay the same as city subscribers, $1.50 a month. They have been notified by the company that the telephones owned by them must be replaced by the company's telephones, a part of the transaction that was not understood when the farmers consented to relinquish their rights in the city.

A Sound Injunction from Iowa.

The Spencer, Iowa, *Reporter* said recently: Less than a year ago the Bell Telephone Co. bought the Independent lines at Spencer, Iowa, and made the following raise in rates: On business telephones from $1.50 to $2.50. Residence telephones from $1.00 to $1.50, also cut out free country service. This would make a raise of about double the Independent rate. Better to support the Independent companies than to wish you had.

Dubuque Reaping Final Results of Monopoly.

Reciting what it terms the "final move in the last round of the fight" between the Bell telephone company and the Independents in Dubuque, the *Herald*, of that city, declares that history is repeating itself.

"A history of the transaction whereby the Bell Telephone Co. secured a controlling interest in the Dubuque Telephone Co., a controlling interest that enables them to carry out their plan of stifling the Dubuque Telephone Co. over the protests of the minority stockholders, is very apropos at this time," continues the *Herald*.

"In 1899 the Dubuque Telephone Co. was organized as a part of an Independent telephone system extending throughout Iowa. Just when the first overtures were made toward securing a controlling interest in the Standard Telephone Co. is not known, as negotiations in the matter were carried on with Messrs. Howe and Hagen, of Waukon. On April 3, 1908, the deal was consummated. At that time the Independent telephone stock was paying dividends of between 6 and 8 per cent. per annum. The Bell interests paid $112.50 per share for the Standard telephone stock, all the stock being sold by Waukon parties, a sufficient amount of stock being sold to give the old company complete control of the new.

"By the sale of the stock to the Bell Telephone Co. that company was enabled to increase its toll rates throughout northeastern Iowa and to force northeastern Iowa towns that could not reach Dubuque on the Bell line before the sale to use the Bell line exclusively, by preventing these towns from reaching Dubuque over any other than Bell lines or over lines controlled by the Bell company.

"Since the old concern has secured control of the Standard

How Des Moines Was "Saved" from its "Folly."

That the Des Moines telephone user is inclined to be resentful at the process which has given him a "unified and efficient service," as so ably pictured by *Public Service* in the item reproduced on the opposite page, is evidenced by the rather pungent comments on that service which follow. These it should be recalled, are based on practical experience with a regained monopoly extending over a considerable period of time.

In an interview published in the Des Moines *Capital*, B. F. Longley, a prominent business man of that city, said: "Speaking of the complaint which is being made on public utilities by Des Moines citizens, I believe that the one which should come in for the greater part of it is the telephone company. The telephone company is the one thing which is robbing the people and there is no way for them to squirm away from it. The service is downright rotten, yet we business men must keep in our telephones. We can't take them out and escape payment on them. Yet the telephone company is the worst of them all. People must pay for them whether they get service or not. I say for the city council to hit the telephone company and hit it hard."

The Des Moines *Tribune* adds its comment, as follows:

"The telephone service of the Hawkeye in this city has for some time been very unsatisfactory, *particularly since the acquirement of the company by the Bell interests.* The patrons of the company had a contract in 1909 with the Hawkeye Telephone Co. and the Mutual company, which was at that time owner in fact of the Hawkeye stock, providing for the installation at once of a central energy system with lamp switchboard. It is thought that the contract was made in good faith on the part of the Mutual company, but the Bell company has ignored it. The system is run down and out of date. There are something like 600 telephones in operation in town besides several hundred on rural lines."

Telephone Co., the stock in that concern which once sold at $115 a share has sold at $90 a share, according to the last sale recorded. Business over the Standard lines has fallen off nearly 45 per cent. and the result has been to so disgust the minority stockholders of the Standard line at the failure of that line to pay dividends that they are now reported practically ready to sell their stock for what they can get.

"The ultimate result of this control by the old concern will be just what was stated at the beginning of this article, the final elimination of the Standard Telephone Co. as a competitor in northeastern Iowa, followed by a raise in the telephone rates that has always been the history of monopoly control of the telephone system in any locality.

"What lends further color to the supposition that the regular stifling of competition will follow the last move in the drama, is the fact that the Bell company has maintained the utmost secrecy in the affair, only approaching such business men as it was thought would have no objection to the proposition or who would not see the coming elimination of the Standard Telephone Co. as a competitor with a corresponding raise in rates as soon as competition had been killed."

Bell Control Objectionable in Wayne County, N. Y.

Shortly after the Bell telephone company absorbed the Wayne-Monroe Co., in New York state, last fall, the usual result was noticeable-poor service and an increase of rates. The subscribers protested and then filed a complaint with the public service commission at Albany, first making a strong objection to the treatment they were getting, to the village council of Lyons, the county seat.

Manager McDonough, of the Bell company in Wayne county, who formerly was manager of the Independent company and helped the Bell get control, appeared before the village council in April and asked that body to withdraw the complaint which it had lodged with the public service commission. The request was laid on the table, but it was understood that the Bell interests had a tacit understanding with the powers that rule that the complaint would be withdrawn.

But that did not satisfy the people, and at a recent meeting of the village board a petition by a large number of telephone users was read which requested the village counsel to press the complaint against the Bell company. There were warm arguments over the matter, and before adjournment a resolution was unanimously adopted requesting the village board to press the charge before the Public Service Commission. After the public meeting the board adopted a resolution instructing counsel Jefferson W. Hoag to press the charges filed with the public service commission against the Bell company for increasing its rates after swallowing the Independent company.

Antiquated Devices Replace Modern Ones.

As reported by TELEPHONY last week, the Bell, having gained a monopoly in Racine, Wis., is now engaged in substituting code ringing devices on its party lines for the modern selective ringing. The bitter criticism which this evoked from the Racine *News* is here reprinted:

"Such a system as the Wisconsin Telephone Co. is now installing is in use on the rural telephone lines. It has been declared a nuisance wherever tried and will be a most rank nuisance to the telephone users in Racine. The quicker it is dispensed with the better it will be for all. *The Wisconsin Telephone Co., when it absorbed the Citizens' Telephone Co., announced that it would give to all patrons in the city the best and most modern system of telephone service.* When this is to be done, if ever, can only be told by the officers of the company. The start has not been as expected and no one knows what the finish will be.

"So, you user of a telephone, if you are on a party line and are awakened at 2 or 3 o'clock in the morning by the ringing of the telephone bell, do not leap from your bed to answer the call unless you are certain that you are wanted. Just remain in bed and await and see whether one, two, three or four rings are given and then you will know whether you are wanted. The loss of sleep to you is but a minor matter to the Wisconsin Telephone Co."

What the Commission Found at Madison.

Poor service recently aroused general disapproval at Madison, Wis., where the Bell company bought out the Independent exchange, and merged the competing systems about two years ago. Conditions reached such a stage this year as to make it necessary for the Railroad Commission to conduct an investigation. Its report made public last week, shows that the Bell company's interest in expansion waned as soon as it had destroyed the stimulus of competition. It went back to the old monopoly principle of a small trade at the biggest profit.

The official report of the commission shows that its switchboard is now inadequate for the traffic. Operators were loaded so heavily that frequently calls came in when all cords were plugged up; "team work" led to interruptions of service, due to operators taking down the wrong cords from adjacent positions, during rushes. In fact Madison simply furnishes another chapter in the history of insufficient and poor service resulting from the re-establishment of monopoly.

Incidentally, it furnishes an example of the limitations of commission control—for apparently no commission can make a company exercise foresight involving the expenditure of funds. It has to await the actual development of an illegal condition before it can act. Competition, on the other hand, is like a good wire chief—an influence in the direction of "shooting the trouble before it happens."

Revenue Account, Topeka Independent Company.

The Topeka Independent Telephone Co., Topeka, Kans., has issued a statement showing income and expenses for the six months ended April 30. The figures compare as follows:

REVENUE ACCOUNT.
Six Months Ended April 30.

	1911.	1910.	Increase.
Gross earnings	*$93,538.22	*$85,838.32	$7,699.90
Expenses, inc. depreciation.	57,622.24	55,354.15	2,268.09
Net earnings	$35,915.98	$30,484.17	$5,431.81
Interest on bonds	16,074.90	13,824.90	2,250.00
Balance for dividends or betterments	$19,841.08	$16,659.27	$3,181.81

*Tolls included.

Number of telephones	7,290	6,697	593
Renewal reserve			$ 73,325.79
Bonds outstanding	$ 643,000.00		
Less owned by company	110,000.00		533,000.00
Capital stock authorized	1,000,000.00		
Capital stock issued			100,000.00

Independent Activity in California.

The Tehama County Telephone Co. has leased the Morgan building, at Corning, Cal., and will at once install a central office there. There will be no delay in the work of building the line from Red Bluff to that city, and the local system will be installed as soon as possible.

With the completion of the system of the Tehama County company there will be Independent companies operating on the west side of the valley from the northern boundary of Yolo to the southern boundary of Shasta.

Sowing the Wind

The Chicago Tribune—Lorimerism—Lumberitis—Vailism—Etc.

By J. C. Kelsey

The *Chicago Tribune* is a family affair.

It is technically perfect, and I believe it is the greatest newspaper in the world.

It loves vested interests as naturally and honestly as Napoleon loved lords.

It represents a select social and financial clique that finds it hard to stop short of inflicting manslaughter upon the common herd.

After making up my mind on any subject, I am always sure to find the *Tribune* opposing me as I unfold its pages daily.

This may be a sad and even foolish confession, but no man is responsible for all his mental exercises.

The *Tribune* supports the Chicago Telephone Co. manfully. It always supports monopoly and vested rights—and is proud of its position.

Yet the *Tribune* says: "Wherever we look in America today, we see a rising tide of popular feeling against organized wealth. Thus far the feeling has been moderate, as such feelings go, yet, moderate as it has been, it has called forth an alarmed protest of conservatism, of men or property, and of corporation officials.

"Solemn warnings are uttered at banquets and conventions against tampering with the handiwork of the fathers, against interfering with business, against encouraging the demagogue, and against radical legislation.

"*The Tribune* invites the attention of the class which gives vent to such protests and *which has most to lose by social and political upheavals* . . . to evidences malodorous and unmistakable in many places in this republic, that politics and a certain kind of business are interwoven in an alliance which strangles representative government.

"This alliance will not be tolerated by the American people. But unless the managers and directors of great corporations and business interests realize this, and fill up their subterranean connections with political machinery, they will find themselves confronted with corrective measures not all to their liking. And they will not find that the people will be frightened out of drastic measures by appeals to academic doctrines, however venerable."

Coming from the *Tribune*, these statements carry extraordinary weight.

I can imagine that French papers preached just such warnings before the French revolution.

I have always claimed that politics was reasonably pure until business men jumped into the game.

I really believe there is more real villainy cooked up in places like the Union League Club than in any evil ward in Chicago—not altogether slimy in detail, but involving some scheme of tax dodging, electing the proper man to office, or stealing water from the city.

More harm has been done by the exposure of the details of the Lorimer case than you can imagine.

It has brought out a contempt for law, a lowering of senatorial or official dignity, a decrease of respect for business men—especially big business!

Big business needs lots of respect from a distance—

If we all got familiar with big business, our contempt would be great enough to legislate it to quick and painful death.

A country harness-shop has a greater percentage of business principles involved in its successful conduct than any trust.

When a man like Tilden, a great banker, packer, heavyweight, etc., sits on a witness stand and says he keeps no record of business transactions, even the children know that he is fibbing.

Yet, we try to keep children truthful!

Really, it seems that the proper big business training for a child is to make him a liar from birth.

Capital has held sway over labor simply because the capitalistic influence has had the overpowering weight of intellect and social training behind its money.

But they are four-flushing.

A few more Lorimer deals, and no capitalistic influence can command the respect even of a newly imported Italian laborer.

Remember what a contemptible exhibition the insurance presidents made.

Testimony, such as has been given by our alleged captains of industry, has been a sad commentary upon business. It has cost millions.

The *Tribune's* advice must be taken soon or the cost will run to billions.

We know that the *Tribune* hates Lorimer—that Lorimer's election was questionable.

It has not evaded the *Tribune* attack.

Witness Mr. Hines, suffering from "lumberitis"—a lumber magnate. What an exhibition he has made of himself!

He claims that Funk of the Harvester company came to him and volunteered $10,000 toward Lorimer's election expense.

Pretty rotten, eh? But, he does not mention the brand he uses.

The *Tribune* is a Harvester paper. A member of the Medill-McCormick-Patterson-Harvester-*Tribune* family formerly wanted to be Senator, too.

I imagine that Mr. Funk *very cheerfully* offered $10,000—I don't think!

But it shows that business men in politics have purified the stream. Do you believe it?

Lorimer was elected, theoretically, in no different manner from the Platt-Root-Curtis-Bailey crowd now alleged to be representing the "peepul"—by the use of business men's money!

In Chicago today, you will find big business men violating more ordinances than the footpads.

How in the world can these people expect the small malefactor to behave, if they do not set a better example?

As the *Tribune* says, the people who need protection the most are the greatest offenders.

Business men must withdraw from politics—

But there is but one way to kick big interests out of politics.

Free Trade!

Tariff and special privilege have brought big business into

the political game. Free trade, at least, would drive the manufacturing trust element out. Competing with Europe on even terms would leave little time for foolishness.

It probably would not drive out operating trusts, such as Bell, Express, etc.

One of the most inconceivable and audacious plans is that fostered by the Bell, that is, a universal control of wires.

That is Vailism!

When the entire country is disgusted with the delinquency and moral obliquity of big business men, this foolish policy of Vailism is being preached and practiced.

Vailism has frightened quite a few Independent telephone men.

There are a few Independent telephone men who have not learned that the telephone is a local issue.

It is natural that some Independent companies should have a tendency to sell out.

A bunch of local people heard for years that a single Bell dollar returned 1,600 to its investor.

When the patent expired, there was a rush to make 1,600 for 1.

Naturally, some got discouraged and did sell out 2 for 1, or more. Bell has always been easy.

But today there are thousands of Independent companies which are content with 8 per cent and have no fear of invasion.

They are not afraid of Vailism.

Vailism is not far from Lorimerism in monopolistic effects.

I will bet that a close investigation of virtuous Murray Crane's election would make a stir.

If every foolish yet profoundly innocent, word was repeated, it would likely make us blush with shame.

Lorimerism is but an imitation of Crane-ism, Rootism and others.

A coarse one, however.

But never before did a courageous newspaper go into malodorous details.

Vailism contemplates Tilden, Hines and other forgetters.

It means stifling of competition.

Did you ever observe that every case of bad memory is furnished by an enemy of some small business or competition?

Vailism means destruction of competition. And the destruction of competition is so desirable that even minority stockholders are sacrificed.

Look all about you!

Vailism has practically killed the hopes of every Bell licensee stockholder. Vailism directs all the receipts to Wall street, and strips the minority owner.

It is the same policy which makes railroads pay dividends for holding companies, and allows rotten ties to throw passengers to death.

Vailism is rule or ruin.

We already know that certain licensee officials have defied the great Pooh Bah. Universalism is not all roses.

Primarily, Bell telephone is a long distance proposition.

In the Ingersoll case in Canada, the Bell crowd claimed that they would not have any telephones in any town were it not for long distance connection. This is a pretty poor hold, and a very sad confession.

I can't talk to Grand Rapids from Chicago .

It is hard to hear any one, even locally.

A proof of this is shown by a report of T. F. Purvis, of the British General Post Office: "American rates are three times higher than in Europe, yet transmission is in their favor."

Mr. Purvis says that "in America communication above 400 and 500 miles is not at all easy." If one is lucky he may obtain a fair talk between Chicago and New York."

Does not that increase your faith in "Universal Connection?"

A foreigner came here to investigate. He had every facility. And then finds universal connection conditions impossible.

The Kansas farmer could not talk to his New York broker or doctor or grocer if he wanted to.

Universalism or Vailism is a joke! You can't get away from it.

Ordinarily, good copper lines will give a good talk. But load them up with coils and coils, and get new circuits out of nothing. You gain in gross receipts—and the public telegraphs because it can't hear over the telephone.

That's why they need the Western Union Telegraph Co.

Vailism contemplates even the choking of voice currents.

Not content with choking the public and choking the minority stockholders, Vailism even has a grudge against the voice currents set up by the public.

Vailism demands government control and state commission control.

Politics! Simply politics!

It prefers to spend its money on lobby and election of commissions. It can't keep out, because a square, honest commission is not what Vailism wants.

Vailism can not conceive of any human being not having a price.

Any man can be bought! That is why it wants control. It thinks it can buy the controllers!

Vailism reminds me of a man depending upon oxygen for life. As long as the artificial restorative is available, the patient lives. When naught but natural means are available, then the miserable patient dies.

Vailism pretends to believe in natural monopoly, but it has little confidence in nature helping it.

Look at the restoratives. Politics! Advertising! Molding public opinion by means of blood-money!

If the telephone were a natural monopoly, there never would have been an Independent uprising. Nature would have made a greedy Bell directorate expand. But Nature is not a part of Vailism.

Nature helps Independent telephones because of the local value of the telephone.

Get your town.....	90 per cent.	—90 per cent.
Get your county.....	98 per cent.	— 8 per cent.
Get your state.....	99½ per cent.	— 1½ per cent.
Get your republic.....	100 per cent.	— ½ per cent.

"Universal" is worth one-half of 1 per cent., if you could manage to talk beyond 400 or 500 miles.

It may be that Vailism has realized that it resembles an insurance company. It depends upon young blood and new business to live.

Vailism can not stop, because in its stationary position we could all see its pitiable condition.

A swiftly passing train does not reveal the unvarnished spots, the falling brake beam nor the cracked coupling pins.

Vailism has lost its terrors. Its specter frightens no one.

Independent legitimacy will be fully recognized just as soon as all Independent men recognize it themselves.

You need not be frightened any longer by hideous yells and awful false faces.

Vailism has sowed the wind and can not help but reap the whirlwind.

MORAL:—A good memory is dangerous!

Prominent Telephone Men of the Northwest.

The Independent telephone business of Oregon and Washington is managed by a group of exceptionally capable men. Conventions are not commonly held in this section as yet, but TELEPHONY is fortunate in having obtained a copy of a photograph taken during a recent gathering at Portland, when several of the principal technical men of the section came together to testify in a case requiring expert evidence.

The men in the picture, reading from left to right, are:

Lower row—C. H. Judson, General Manager, Northwestern Long Distance Tel. Co., Tacoma; J. D. Ross, Superintendent lighting department, City of Seattle; C. L. Zahm, Chief Engineer, Inter-State Consolidated Tel. Co., Spokane; Walter Hardinger, electrical engineer, Portland.

Upper row—A. E. Boyles, General Superintendent, Northwestern Long Distance Tel. Co.; J. B. Middleton, Manager, Home Tel. & Telg. Co., Portland, Ore.; H. A. Anderson, General Superintendent, Independent Tel. Co., Seattle.

Mr. Judson's standing in the telephone field is so well known as to make comment unnecessary.

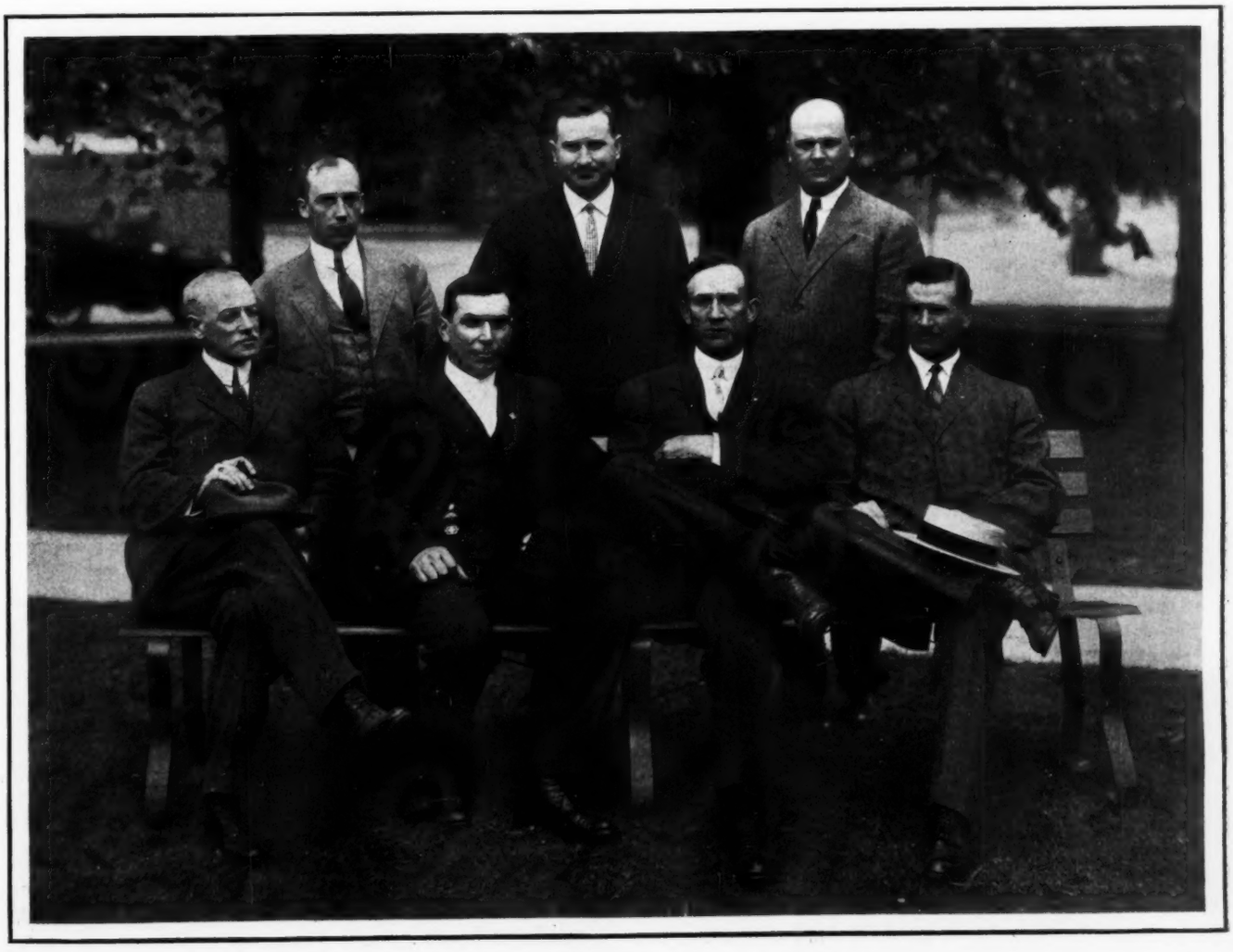
Mr. Boyles was with Mr. Judson in Seattle, while he was chief engineer of the Independent company there. Mr. Hardinger was general superintendent of construction of the Home Telephone company of Portland during its building; and Mr. Anderson has recently gone to Seattle from the office of the Pacific Tel. & Tel. Co., in San Francisco.

Directors Personally Responsible for Prospectus.

On July 11 the appellate division of New York court held directors of the now defunct U. S. I. Tel. Co. personally responsible for alleged misleading statements in a prospectus, and rendered judgment against them for $4,000 in favor of C. M. Lane, and $1,000 in favor of F. H. Downey, who sued to recover the purchase price of bonds purchased on the strength of the prospectus.

Physical Connection Law Passed in Wisconsin.

The governor of Wisconsin has approved a bill providing for compulsory physical connection for long distance service, under terms, and for adequate compensation to be determined by the Railroad Commission. An "anti-duplication" section also occurs in the law. The act took effect immediately.



A Group of Leading Telephone Men of the Northwest.

Michigan Independents Prepare for State Control

Meeting at Grand Rapids Shows Harmonious Desire to Co-operate with State Railroad Commission, Which Must Assume Telephone Jurisdiction August 1—Orders for Physical Connection Will Not be Resisted—Early Action Expected Under Giles Law

State control of the telephone business is not feared by the Independents of Michigan. They met at Grand Rapids on Monday of this week and spent an afternoon discussing the subject. As far as their relations with the public are concerned, any action of a competent, fair commission, clothed with powers like those conferred by the Michigan Giles law, is likely to result in benefits to the companies as well as the users of their service. Physical connection, under commission control, is recognized to be a matter of which the effects can only be determined by experiment. It is believed that the question will be brought before the commission practically as soon as it assumes jurisdiction over the telephone industry of the state. The possible effects were discussed at length at the Grand Rapids meeting, and all present were united in the opinion that it is desirable to await action under the law in a friendly spirit and obey the orders of the commission promptly.

The effect of the Giles law upon relations between competing companies received but brief discussion—a fact which may surprise some persons. But it was evidently understood that the enforcement of the physical connection provision will henceforth be a great protection to those companies which have experienced a public demand either natural or artificially aroused, for service over both groups of competing toll lines. A physical connection order by the commission will make contract relations unnecessary. The commission would simply order a trunk to be run between the switchboards of the competing companies, and any business requiring such facilities would be handled under terms, including fair remuneration, established by the commission—a disinterested body, whose orders are expected to be more fair than any connection contract dictated, for example, by present Bell policies, would ever be. It is, therefore, expected that orders by the commission will finally do away with any temptation of Independent companies to take Bell lines on their boards.

In regard to rates, it is clear that the commission can prevent discrimination. The enforcement of this provision will be highly beneficial. It will enable companies to stop free service to city officials, railroads, and other parties; to equalize returns from parties who obtained service at different times, and under different rates; to stop free county service, and substitute a reasonable message charge, and confer other benefits. It may assist the Bell company to overcome the temptation to give service at a loss which a competitive condition frequently creates; as for example, is shown by its present rates at Kalamazoo, a non-competitive town, being some $12 above the figures to which it is now trying to *raise* its Jackson service, after some years of cut rate competition at absurdly low figures.

Farmers' line conditions will undoubtedly be improved by the work of the commission. It will be impossible, under the law, for a group of agitators to cut loose from the lines of an established company giving good service at reasonable rates, and put in a new system at losing rates; or even for a group of men ignorant of the telephone business to establish any new lines, unless the public convenience so requires. Thus the established companies are assured protection as long as they fulfill their duties to the public; while on the other hand, if they become unreasonable, or delinquent, the public has free access, on proof of such conditions, to the remedy of competition.

The above, in brief, are some of the most prominent views brought out in the open discussion at the Grand Rapids meeting. The attendance was fully and fairly representative of the Independent telephone interests of the state. Hon. E. B. Fisher, as presiding officer, conducted the meeting as a strictly open, and informal session, and nearly every man present expressed his views on the main topics of discussion. W. S. Vivian, secretary of the Traffic Association, acted as secretary of this informal meeting. Among those present were:

C. E. Tarte, general manager, Citizens Telephone Co., Grand Rapids; W. A. Jackson, president, Home Telephone Co., Detroit; J. P. Gibbs, secretary, Valley Home Telephone Co., Saginaw; A. C. Himebaugh, president, Southern Michigan Telephone Co., Burr Oak; John A. Russell, vice-president, Home Telephone Co., Detroit; C. D. Boyd, Grand Rapids, Michigan representative of the Kellogg Switchboard & Supply Co.; Frank Reames, owner of the Citizens Telephone Co., Howard City; W. B. Service, general superintendent, Union Telephone Co., Owosso; L. L. Conn, secretary Union Telephone Co., Alma; H. E. Jeffery, general manager, Valley Home Telephone Co., Saginaw; F. G. Barbee, secretary, Mutual Telephone System of Allegan and Van Buren County; C. B. Hall, general manager, Washtenaw Home Telephone Co., Ann Arbor; Thos. Bromley, Jr., general manager, United Home Telephone Co., Ludington, and the Citizens Telephone Co., of Muskegon; Nelman F. Wing, president, Home Telephone Co., Grass Lake; R. C. Smith, secretary, Homer Telephone Co., Homer; Mr. Moran, general manager, Swaverly Telephone Co., Kalkaska; C. W. Swaverly, manager, Swaverly Telephone Co., Kalkaska; J. E. Hisey, general manager, Central Michigan Telephone Co., Laingsburg; C. A. Rauch, general manager, Wayne County Telephone Co., Plymouth; G. M. Every and Mr. Kennedy, Grand Ledge Telephone Co., Grand Ledge; William S. Schafer, secretary, Ida Telephone Co., Ida; W. H. Graves, treasurer, Leslie Home Telephone Co., Leslie; S. M. Buckingham, manager, Leslie Home Telephone Co.; M. W. Briggs, general manager, Cass County Home Telephone Co., Dowagiac; H. B. Stuart, attorney, Southern Michigan Telephone Co., Battle Creek; John Babcock, manager, Quincy Telephone Co., Quincy; J. F. Fitzsimmons, president, New L. D. Telephone Co., North Adams; L. D. Kellogg, president Kellogg Switchboard & Supply Co., Chicago; Franklin H. Reed, TELEPHONY, Chicago.

Pacific Bell Throws Away Business.

The Pacific (Bell) Telephone & Telegraph Co. has discontinued service on the farmer lines in the Visalia, Cal., district and the ranchers of the vicinity have been busy installing their own instruments during the past week. The company claimed that the instruments in use were the property of the Bell company and were on lease and that the company did not feel like renewing the contracts for service.

As a result of the action there are thirty-seven farmer companies being organized, or now in active operation. The city of Visalia has been crowded for several days by ranchers who came to town to secure their instruments. Over one thousand new instruments have been put in within ten days and a large shipment is on the way to the valley city.

The farmer companies are at present using the old lines of the Pacific company, but will later build their own line which will be seven miles in length. The Pacific company ceased service July 1.

Some Observations on Telephone Transmission*

Conclusion of Paper Which Sets Forth Historical and Technical Data, and Elucidates Principles Which are of Great Value to Railway Officials Dealing with Telephone Problems, and Equally So to Executive Officials and Engineers of Commercial Telephone Companies

By J. L. McQuarrie

For a long time extensive use has been made of means permitting the simultaneous use of a line for telephony and telegraphy. If the two wires of a metallic telephone circuit are used for independent grounded telegraph circuits, we say the line is "composited"; but if the two wires of the telephone circuit are used in parallel as a telegraph circuit, we say the line is "simplexed." The compositing of a circuit does not limit the possibilities of also using it as one side of a phantom. The composited or simplexed circuits result in large savings, but whether the former or latter should be used depends upon a number of considerations. It may here be stated, however, that in general the use of the simplexed circuits presents fewest complications, so that where an adequate supply of telegraph circuits can be obtained by this method it is not usual to resort to composited circuits. This should not be misunderstood as implying that the use of composited circuits involves much complication, since, provided suitably designed equipment has been procured, the operation of composited circuits presents no difficulties. The transmission loss due to the addition of composited apparatus to the two ends of a circuit is just noticeable, being about 10 per cent. or one mile of standard cable. The loss due to simplexing depends upon the type of simplex employed, whether "bridged retardation coil" or "repeating coil," and in each instance upon the type of apparatus used. In the case of small cheap repeating coils sometimes employed, the loss may be serious, being perhaps 50 per cent. or six or seven miles of cable.

In the case of composite apparatus especially, it is important that it should be carefully designed so that the telephonic efficiency will be a maximum and the chances of interference due to noise between the telegraph and telephone made a minimum.

Standardizing Method of Measuring Transmission.

In the successful practice of any art it is essential that means be provided for measuring the value of its elements, and a standard method of measuring the value of telephone transmission has been developed. In the earliest days of telephone practice it was customary, when comparing two instruments, or when comparing the transmission over two lines, to express the difference in transmission by the statement that one of them was a certain per cent. superior or inferior to the other. The objection to recording the results of tests in this way is that no two observers expressed a given difference in transmission efficiency by the same percentage. Each observer had a certain arbitrary standard by which he expressed the differences: thus, for instance, an observer might note a difference which he could just distinguish as 5 per cent., a comparatively important difference by 15 per cent., and a very large difference by 50 per cent. Another observer might express a difference which he could just distinguish by 1 per cent., a comparatively important difference by 5 per cent., and a very large difference by 15 per cent. or 20 per cent. It, therefore, became necessary to choose some standard unit so that the results of different observers could be compared, even if one was a telephone engineer in the United States and the other a telephone engineer in a foreign country. The engineers of the American Bell Telephone Co. selected as the basis for a standard of transmission a No. 19 B. & S. gauge paper insulated cable, having a capacity of .054 microfarad per mile. The transmission efficiency of a telephone circuit between two standard substations could then be stated to be equivalent to a certain number of miles of standard cable. If this circuit was changed in some small degree, such as, for example, by the insertion of a bridged drop, the changed circuit was then noted to be equivalent to a slightly different length of standard cable. The difference between the two lengths of standard cable corresponding to the line with and without the bridged drop was said to be the transmission loss or gain, due to the insertion of the bridged drop; or, as another illustration, if with one type of transmitter it was possible to talk over a given length of No. 19 gauge cable, while with another transmitter the same volume was obtained over a different length of standard cable, the difference between the two lengths was said to measure the inferiority or superiority of one transmitter over the other. As it is not convenient to use actual No. 19 gauge cable circuit, artificial cables were designed in convenient form for transmission testing. Some of the earlier forms of these cables are described very fully in P. E. Erickson's article on page 676 of Telephony, June 12, 1909. It should be here pointed out that in the use of artificial lines, or for that matter, in the use of actual No. 19 gauge cable, certain precautions must be taken to avoid false results. For instance, the insertion of one mile of No. 19 gauge cable in the middle or at the end of an aerial line does not increase the transmission loss over the circuit by the same amount as does the insertion of a short length of cable, such as one mile in a similar cable circuit. To illustrate: If open wire lines were being compared and they differed slightly, correct results would not be obtained if, in order to make the volume the same, a short length of cable, say one or two miles, were added to the circuit having the better transmission. The length of cable added would not represent the difference in transmission efficiency. One method of measuring the transmission efficiency of the two circuits would be to determine the equivalent of each one in terms of standard cable, then to take the difference between the two noted results as representing the difference in efficiency of the two circuits.

Obtaining Construction at Minimum Cost.

To one called upon to furnish telephone facilities the important problem is to determine in detail what construction should be employed in order to obtain the required result at a minimum cost. At the present time telephone substation apparatus has been fairly well standardized, and the difference in cost between the very best and the inferior instrument is so small that there should be no excuse from a financial point of view for the purchase of inferior transmitting or receiving apparatus. Compared with the cost of the lines as will be illustrated later, the differences

*Abstract of a paper presented at the Boston Convention of the Association of Railway Telegraph Superintendents.

in the price between the very best telephone apparatus and the poorest is infinitesimal. The largest economies, therefore, which it is possible for one planning a telephone system to achieve are accomplished by savings in line construction and by the use of such methods of operation as will secure the maximum use of the facilities provided.

In dealing with this phase of the problem it is first necessary to establish a standard of transmission which it is desired to furnish. Preferably this standard of transmission should be expressed in miles of standard cable, although if it is so desired it can be expressed in terms of an open wire copper circuit of a given loop resistance or weight per conductor per mile. If different classes of lines are to be considered, it may be advisable to have two standards, one for a certain class of service, perhaps the bulk of that which is being considered; the other for a certain special class of service which represents but a small percentage of the total amount. For instance, it might be desirable to fix for certain classes of service a 20-mile standard, which for other classes of service a 30-mile standard might be considered satisfactory.

General Suggestions Regarding Construction.

Having established the standard of transmission, I may point out certain general principles for guidance in determining the most suitable construction. If the circuits are to be wholly of open wire, the problem is comparatively simple. If copper wire is to be used, mechanical strength limits the engineer to the use of wire not below 160 or 175 pounds in weights, although climatic conditions, such as sleet or high winds, must be taken into consideration. Very approximately where copper is used the length of line over which it is possible to give the desired standard of transmission is inversely proportional to the resistance of the circuit per loop mile. To illustrate, if transmission between two substations of a standard type is satisfactory over a 400-mile line of 210-pound copper wire having a loop resistance per mile of approximately 8.5 ohms, then an equal grade of transmission can be given over a circuit 200 miles in length by using copper wire weighing approximately 105 pounds per mile and having a resistance of approximately 17.0 ohms per loop mile. However, as the latter size of wire under ordinary conditions does not possess satisfactory mechanical strength, it is necessary either to use larger copper wire or to use bi-metallic wire, selecting in this case a size and grade of wire which will provide mechanical strength with a resistance not in excess of that of the 105 pound copper conductor, or 17.0 ohms per loop mile.

Two cautions may well be introduced here: First, that this proposal is only approximate and, since exact transmission efficiency involves the knowledge of an experienced telephone engineer, it is well, where the amount of construction is considerable, to obtain the advice of an expert, because the difference in cost between two sizes of wire may represent a very large sum of money. Second, for iron wire circuits no simple rule applying to different gauges of wire can be given, since their efficiency is not simply related to the weight or resistance, as well as for the reason that in the case of iron circuits there is a tendency for the joints to become of high resistance, causing an old iron circuit to have a much lower transmission efficiency than the same circuit when newly installed.

In the case of cables, the transmission efficiency varies inversely as the square root of the product of the loop resistance and the mutual capacity. Diverging for a moment, since in the past there has been some confusion in regard to the capacity of a cable as affecting transmission, it may be emphasized that it is the mutual capacity between wires of the pair and not the grounded capacity of a wire or conductor which influences the transmission. However, it can be added that for ordinary paper insulated lead covered cables the ratio of the mutual to the grounded capacity is nearly constant, being approximately two-thirds. Hence, if in one case the mutual capacity is known and in the other only the grounded is available, it is possible to compute the mutual capacity in the latter case and then compare the two cables.

To illustrate this rule governing the efficiency of cables, an example or two may be presented. Very approximately the capacity of paper insulated lead covered cables of different gauges may be taken as the same, since it is common practice to so construct them. Assuming No. 19 B. & S. gauge cable as the standard, a No. 16 B. & S. gauge cable which has approximately half as many pairs for the same size of lead sheath and for the same weight of copper, gives only 40 per cent. increase in transmission efficiency over the standard No. 19; or, in other words, 1.4 miles of such No. 16 gauge cable is equivalent to one mile of No. 19 gauge cable. In the same manner, two miles of No. 13 gauge cable gives the same transmission loss as one mile of No. 19 gauge cable of the same capacity; that is, in the case of non-loaded cables, of which I am now speaking exclusively, to double the transmission efficiency it is necessary to multiply the weight of the copper conductor by four, which obviously results in a very large increase in cost.

Regarding the capacity of cables, it may be pointed out that, in order to obtain a change in mutual capacity of, say, from .070 to .054 microfarad per mile, it is necessary to very greatly reduce the number of pairs in a cable having a given sized sheath, the reduction in some cases being almost as great as 50 per cent. While it is not possible to formulate a rule applicable to all cases, it has in general been found to be economical to use cable having a reasonably high capacity, that is, a rather compact cable, and then where necessary to increase the transmission efficiency by increasing the size of the conductor and gauge rather than to attempt to secure the transmission gain by a low capacity. This is especially true when the price of copper is low.

As to Part Cable and Part Open Wire.

The above directions apply to cases where the transmission circuit is wholly a cable line or wholly an open wire line. If of necessity the circuit must be carried for part of the distance in cable and part of the distance in open wire, the problem is much more complicated, since in order to obtain a standard grade of transmission at a minimum cost it is necessary to so proportion the cost of the cable portion of the circuit and the cost of the open wire portion of the circuit as to produce a minimum cost for the whole line. In a paper of this nature it is hardly possible to present even general rules to cover the methods to be followed in so proportioning costs. I may, however, illustrate what is not good practice by an example: If it is desired to furnish transmission between points 400 miles apart, and if of this distance conditions require the use of a cable for ten miles, the remainder of the distance being open wire, it would obviously be uneconomical to use a large gauge conductor, such as a 420 pound copper wire, for the open wire portion of the circuit, and for the cable portion of the circuit to use a No. 22 gauge cable. It would probably be more nearly correct proportion to use a 210-pound copper conductor for the aerial portion of the circuit, and a No. 10 gauge conductor for the cable portion of the circuit. The actual details of construction, however, depend upon several factors, such as the number of circuits which it is desired to provide, whether the cable is to be underground or aerial, etc., etc.

It will in most cases be necessary to equip the telephone line not only with apparatus directly concerned with the transmission of speech, such as the transmitter and receiver, but also for the purpose of signaling there will be required apparatus, such as bells, drops, relays or repeating coils, and these devices will have to be considered in calculating the line. A few general statements more or less in the way of caution may be in place with respect to the use of such appliances. First, referring to bridged apparatus, it being assumed that excepting for very special cases series apparatus is not to be employed, it should be pointed out that the effect of bridged apparatus on the transmission does not depend on its direct current resistance, but upon its impedance to currents of telephonic frequencies; that is, it is quite possible that a drop having a resistance of 200 ohms would not cause as great a transmission loss as another drop having a resistance of 500 ohms if the first drop mentioned had a higher impedance to telephonic currents. For a given style of drop, it is true that the higher the resistance the higher the impedance, but in considering transmission values it is not safe to compare drops of different design and construction on the basis of their direct current resistance.

Guarding Against Transmission Losses.

In the case of other apparatus, such as phantom circuit repeating coils, no rule can be given for the transmission efficiency of the coil, since in the design of the repeating coil an attempt has been made to secure adequate ringing efficiency as well as high transmission efficiency. As a general rule, however, the cheaper coils on the market are inefficient from a transmission standpoint. In this connection a word may be said regarding the importance of guarding against transmission losses in the apparatus attached to the circuit. Illustrating by the case of phantom repeating coils, it may be said that the cheapest coil on the market costs perhaps $4, while the most expensive coil on the market costs approximately $15, a difference of $11. For the complete equipment of the phantom circuit the difference in cost of the four coils is, therefore, but $44. Considering the transmission loss at the two ends of the side circuits, the difference in transmission efficiency between the cheap coils and the high grade coils is perhaps four miles of No. 19 gauge cable. It is not a difficult problem in the case of any circuit to determine the cost of making up this transmission loss by the use of a larger gauge of copper conductor. In most cases it will be found that the cost of making up the loss introduced by the coils will be from 10 to 100 times greater than the saving which results from the use of the cheaper coil. Therefore, in an efficiently designed plant the use of cheap apparatus involving a large transmission loss is not in general found to be economical. This, however, must not bet be taken to apply to special cases where a satisfactry grade of transmission can be given over circuits with an inefficient type of associated apparatus. Such cases arise where, for the purpose of mechanical strength rather than for the purpose of telephone transmission, it is necessary to use a certain type of construction. In this connection also it may be pointed out that a transmission test on a piece of apparatus, such as a drop, is not a sufficient indication that the drop should in every case be satisfactory from a transmission point of view. A loss of much less than one mile of standard cable cannot be readily determined even by experts in transmission. Since to make up a loss of a fraction of a mile of cable by increasing the size of the conductor means the expenditure of a large sum of money, the actual amount depending upon the circuit, even losses as small as one-tenth of a mile of cable cannot necessarily be neglected. A safe practice is to secure the best apparatus from reliable sources which can be depended upon to give accurate data regarding the behavior of the apparatus and circuit.

As the satisfactory quality of telephone transmission depends to a large extent on what is usually termed the maintenance of the telephone lines, it may be of interest to emphasize certain features involved in maintenanc. Poor maintenance results in three defective conditions:

1. Decrease in actual telephonic efficiency; that is, the telephone currents themselves are not transmitted with full efficiency.
2. Noise due to leaks to ground or to adjacent lines, which may be either telegraph, power or lighting circuits.
3. Cross-talk or overhearing from adjacent circuits.

Even when the maintenance is not so poor as to cause an actual decrease in telephonic efficiency but merely to cause noise or cross-talk, the net result is a decrease in telephonic efficiency since speech is rendered less distinct. As far as the electrical requirements are concerned, maintenance should care for the following points. In order to prevent a reduction in actual transmission efficiency the maintenance should be of such character that under no condition of weather will the insulation between the two sides of the circuit fall below a certain permissible minimum. As a matter of fact, however, in the case of actual non-loaded circuits, the permissible minimum for the insulation is rather low if it is uniformly distributed, and not much trouble in practice is encountered in securing a satisfactory value, especially as it is only in cases where insulators become soiled or where the lines come in contact with foliage that the insulation falls, even under the worst weather conditions, to a seriously low value.

Considering the matter of noise and cross-talk, however, the electrical requirements are that the two conductors should themselves be electrically similar and similarly located electrically with reference to all other wires and the earth. By the two wires being electrically similar it is meant that they should be of the same size and of the same material, and that neither wire should contain high resistance joints. By stating that the wires should be similarly located electrically with reference to other wires and to the earth it is to be presumed that, under the usual conditions, the wires have been balanced by transpositions. If, however, one wire has a large leak to earth at a given point, and the other wire is well insulated at this point, the balance secured by transposition is disturbed and the chances are that the line will become noisy or that there will be cross-talk. For this reason leakage to earth through poor insulation is very likely to cause noise.

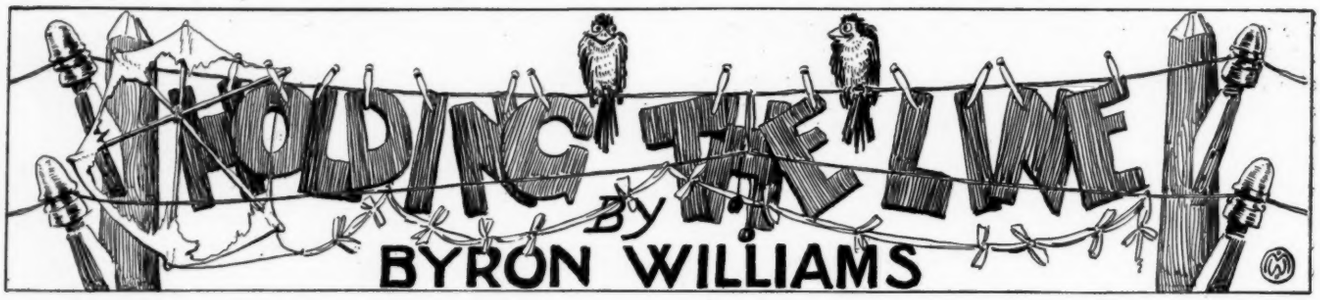
Problem Not a Simple One.

The problem of securing a satisfactory grade of telephone transmission at a minimum cost is not by any means a simple one. However, it is a problem which admits of exact engineering or of as exact an engineering solution as the corresponding problems in power distribution. One called upon to provide telephone transmission facilities as compared with one called upon to provide power transmission facilities, is confronted with two difficulties: First, the problems involved in the case of the telephone are more complex; secondly, the telephone apparatus of different manufacturers is not as classified in a standard manner with respect to performance, while power apparatus, such as generators, motors and transformers, is rated in definite units as to efficiency, consumption of energy, output, etc.

A Greeting From the Panama Railroad.

A. B. Kratz, superintendent of telegraph and telephones of the Panama Railroad, writes TELEPHONY a word:

"The Panama Railroad is now constructing a new line across the Isthmus. The line will consist of 40 wires No. 10 copper. Old steel rails are used as poles. The railroad company operates seven common battery exchanges with 1,400 telephones for itself and the Isthmian Canal Commission."



Getting Away From Civilization.

The majority of us have been angry at the telephone upon occasion but for my own part, I do not recall more than one occasion when I have been angry enough to eat it. That was three summers ago. For five years I had worked without a vacation, writing, writing. I got so weary of it all that sometimes I felt like taking my typewriter machine down to the lake and chucking it in. This, I realized, would merely mean that I would have to buy another typewriter—and so I desisted.

At last, one beautiful spring day, I got word that I was to have a two weeks' vacation. How happy I was and how well-managed and wisely directed it seemed to me this old world was. I took the boat immediately for the north. Getting off at Petoskey, I drove to Odin, chartered a launch to carry me through the inland route and finally, after traversing five rivers and five lakes, to land me away from civilization in the heart of the woods on Black Lake. Here I was housed in a rude log cabin, far from the "madding crowd's ignoble strife," and went to bed happy.

"I'll have the time of my life here," I chortled to myself. "Here in the dense wilderness, they never will find me. I'll forget there's an office or a typewriter or a copy boy yelling for copy. I'll fish and traipse and idle to my heart's content," —and I went to sleep.

The next morning I was awakened at 4 o'clock by a rude pounding on my door. "Get up, sir! Get up!" called the woman who took in boarders.

"Way," said I sleepily, vaguely remembering that I was to sleep as late as I chose.

"Get right up—and I'm sorry, sir, but they's a telegram here saying Mr. Wright is dead and you will have to come home at once."

Now I knew we were fifty miles from a telegraph station and I blurted:

"How did you get that damned telegram?"

"Please, sir, they telephoned it from Petoskey, where they traced you to."

"I got up sadly, went down stairs firmly, hunted up the telephone which stood in the kitchen behind the door, and said things to it that would have made an ordinary telephone curl up and crisp—but it didn't. It was a most shameless instrument. Then I repacked my suitcase, put away the flies and reels—and came back home without even so much as a chance at the big ones. Do you blame me for cussing the telephone now and then?"

Imitating Old Ed. Howe.

What has become of the old-fashioned fellow who says to his friend over the telephone, "Ah, I see you are looking well today"?

A local Rip Van Winkle has quit trying to be a hero. He says, "Why, there ain't no use endeavorin'. They ain't no chanct nowadays. Gosh, a fellow couldn't even be a Paul Revere; the country is that full of telephones that Paul could leave his hoss in the stable and get 'central' to alarm the hull country in fifteen minutes!"

The residents out Hinckley way are feeling mighty good over their rural telephone line, all except Hiram Stout, who dropped in to say that when "the fool telephone fellers get wise to themselves they will have a phonygraft attachment onto their blamed old talkin' box so's a feller kin call the cows without traipsin' all over an eighty-acre pasture lot!" Hiram's idea may suggest something to our local manager, who is of an inventive mind.

Did you ever notice what a lot of scorn a woman puts into her voice when some other woman rings "central" on a party line? "I am using this line, PLEASE!" doesn't look real saucy in print, does it? But when a woman gives it all the dignity and fire-fighting accentuations of an outraged female moiling for her rights, it's a wonder the telephone tympanum doesn't break! Not that I blame her, for a lady has a perfect right to give another lady a recipe for making fried cakes, if she chooses.

Dr. Brown was telling yesterday how he removed five internal organs from Billy Bunker, the town drunkard, whereat Superintendent Alex Jones of the telephone exchange says he wishes Doc would come up to his place and remove a cracked piano, a phonograph and a young thing that plays 'em, from the flat next door! Alex is our best town joker.

The price of a telephone in our town is one-fifty a month—whereas subscribers can get the *Advocate* for one-fifty a year! Think of it, a whole year for one-fifty—and still some folks leave town without paying their subscriptions. The telephone man has all the best of it over an editor. If the subscriber doesn't pay for his telephone at the end of thirty days, he is cut off—but if a newspaper editor was to run his business that way, he wouldn't have circulation enough in a year to escape the embalmer's fluid. Moral:—What could an editor do without circulation?

A local Beau Brummel was seen to emerge from the telephone office one evening last week with a white dab of something on the shoulder of his coat. Supt. Jones' arch enemy, Dan Cupid, evidently is up to some more of his monkey shines. A telephone girl gets many rings in her time, but a solitaire is the only call that makes her heart go pit-i-pat!

Problems in Telephone Traffic Engineering

This Valuable Paper, Presented at the Chicago Convention of the American Institute of Electrical Engineers, Was Begun in the Issue of July 1, and Will Be Reproduced in Full—It Touches Briefly Upon the Most Advanced and Interesting Traffic Work

By F. P. Valentine

General Superintendent of Traffic, New England Telephone & Telegraph Co.

The production efficiency of trunk and toll circuits is affected by the quality of service which it is desired to produce, by the efficiency of operating labor, and by the efficiency of operating methods, and to a certain degree, by the efficiency of central office equipment. It is also affected by the volume of traffic to be handled and the contract conditions under which the service is sold.

Analysis of this subject has demonstrated that while operating and equipment costs vary directly with the number of unit calls, circuit costs vary indirectly with the number of calls due to the varying efficiency of circuits in groups of different sizes, and more or less directly with the length of haul under a given amount of traffic, except so far as qualified by variation in type of plant necessary to meet transmission requirements.

PRODUCTION EFFICIENCY OF TRUNK AND TOLL CIRCUITS.

The production capacity of a circuit under any method of operation is determined by the average circuit holding time per call and the number of calls to be handled over the particular group of circuits in a given time.

For proper consideration of the subject of circuits, distinction will be made between trunk and toll circuits. Trunk circuits may be considered as local circuits connecting offices covering an area of too great telephonic density to be served economically from one central office, and in which case local service, so called, is sold covering intercommunication between the several central offices. Toll circuits will be defined as circuits between offices more distant from each other and between which the service is sold on a message basis, the charge being graded according to duration of connection and distance involved.

Toll circuits, however, must be considered in two classes, one embracing the "short-haul" or suburban toll traffic, and the other the "long-haul" or "long distance" traffic. The former class may be considered on the same basis as trunk circuits, so far as concerns production efficiency and engineering.

The trunk circuits and "short-haul" toll circuits are provided for the purpose of handling calls on a local basis; that is, the telephone subscriber passes the desired number to his operator and remains at the telephone until the connection is completed or a report returned to him of inability to complete. This feature of the trunk and "short-haul" toll operation necessitates providing a sufficient number of circuits between two offices to handle the traffic offered during the busiest period so that there is always a circuit available when a call is to be handled.

The "long-haul" circuits are for economical reasons provided on a less liberal basis which contemplates that the calls will not be handled while the subscriber remains at his telephone.

A comprehensive series of studies on the subject of circuit use has resulted in the development of methods by the use of which all the elements entering into circuit use can be given proper consideration, and the most efficient operating methods applied to existing conditions.

In figuring circuit loads, as a matter of convenience, it is usual to consider the load for a given group of circuits, rather than for a single circuit. As the circuit holding time is made up the time of conversation plus the use of the line for operating purposes, the total holding time for a call will differ according to the operating method used; for example, the local or "short-haul" toll requires less holding time than that handled on the "long-haul" basis. Also the efficiency of the individual circuits increases as the size of the group increases. These various factors have been studied and reduced to known quantities.

Having ascertained the production capacity of circuits under various conditions of volume of traffic and methods of operation, it is possible to set the proper standards to apply, and with which to check actual results, so far as concerns individual groups of circuits. The study of this matter, however, has developed the fact that in order to properly engineer the circuit plant for handling tne traffic between several hundred offices, the subject is far more complex than would appear at first sight. In considering the circuit efficiency between two offices, as these same circuits may carry in addition the traffic to other points, the plant must be considered as a whole. The comprehensive study which has been referred to, has developed methods by which the circuit plant can be intelligently laid out with predetermined results. The problem in laying out a circuit plant is to furnish the proper

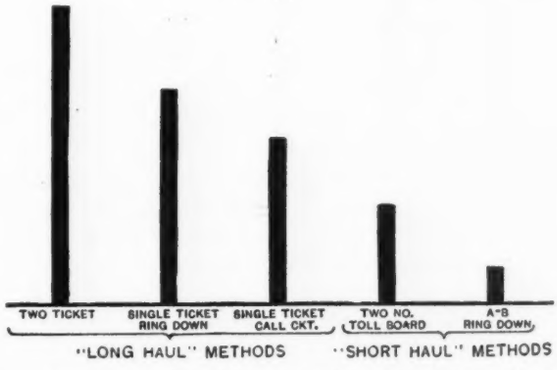


Fig. 2. Operating Labor for Toll Call with Various Methods.

standard of service as to accuracy, speed and transmission with a minimum investment in line plant. It is obvious when one considers the variety of types and grades of trunks and toll circuits that this is no small matter.

The production efficiency of a trunk and toll circuit plant has usually been figured either by computing the number of calls handled per circuit or the earnings per circuit mile. Neither of these methods, however, gives the true measure of circuit production efficiency, inasmuch as for economical reasons it is often necessary to switch long-haul calls through one or more intermediate offices, and on account of the varying size of the circuit groups and the consequent variation in the capacity of individual circuits, the real production efficiency of the circuits cannot thus readily be determined. On the other hand, comparison of the earnings per circuit mile would be very misleading if any change in rates had been made between the periods under consideration.

A far more logical means of measuring the production efficiency of a trunk and toll circuit plant is afforded by computing the number of message miles produced per circuit mile. By computing the former on a basis of air line measurements between points of connection and the latter on the basis of

actual circuit route mileage, a means is afforded of checking the efficiency of circuit plant layout, not only from the standpoint of the efficiency of labor and methods, but also from the standpoint of economical plant layout.

In the foregoing sections there have been discussed in a somewhat incomplete way, some of the principal factors entering into the consideration of traffic engineering problems. Each of these factors has involved most comprehensive study, a discussion of which would involve a paper of considerable length. There is a close relation and inter-dependence between them all. The quality of service is affected by all the other factors, and itself has to be considered in connection with each one. To illustrate the complexity of the problems, and to indicate the possibilities in construction application of the principles deduced from their comprehensive analysis, it is proposed to discuss the concrete application of some of the results of the engineering studies of the last few years in the development of a toll operating system and plant.

From the standpoint of the telephone user, the ideal toll service would afford connection with the most distant point with substantially the same celerity as obtains in case of a local connection. The development of a toll operating system should be toward this ideal as far as economically consistent.

The handling of toll business, at special toll boards, or at separate positions on the local board, developed for two

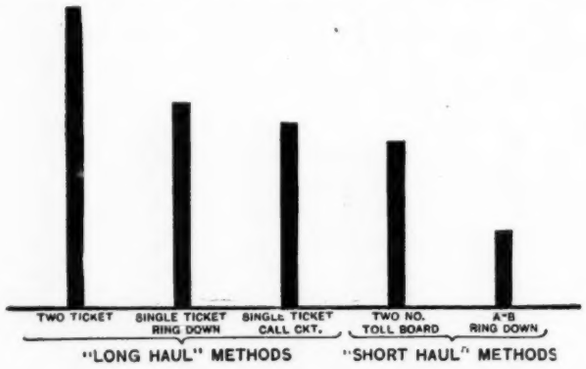


Fig. 3. Switchboard for Toll Call with Various Methods.

reasons. While the operating and equipment charges, under a given toll operating method, are fairly constant, the circuit charges increase in weight with the length of haul. In view of the large investment involved in long toll circuits, it was deemed necessary for economical reasons, to make each circuit handle all the messages possible, and it was generally customary to handle such calls on the basis of arranging to have both parties ready to talk before the circuits were put up for the actual conversation. From the nature of operating procedure involved in handling traffic on such a basis, it was obviously necessary to remove the handling of this type of call, involving extra labor, from the *A* or subscriber's operator, as it would, if handled by the latter, prevent the smooth, quick answering and handling of local connections. Further, on account of the extra labor involved, the productive efficiency of the operator and switchboard were very substantially reduced. It was therefore necessary to specialize and segregate this business. Where the local board was of fair size or an expensive multiple board, it was economical to set up an entirely separate board carrying only the toll circuits, the connection with local subscribers being made through the medium of switching circuits between the boards.

For a clear understanding of the explanation to follow, it will be well to briefly describe some of the most generally used methods of toll operation.

The operating methods employed in handling the toll traffic may be divided into two classes, "short-haul" and "long-haul." In the case of the "short haul" method the subscriber, who must pass his call by number, waits at his telephone until the called station answers, as he would on a local call. In the "long-haul" method, however, the subscriber, having given his call to a recording operator—specifying a particular party if he so desires—hangs up his receiver and waits for the toll operator to call him.

Calls of the latter class are further subdivided according to the operating method employed, namely, the two-ticket method, single ticket ring down method, and single ticket call circuit method.

Under the two-ticket method of toll operating the subscriber signals his local operator, asks for and is switched to the toll recording operator, to whom he passes information sufficient to insure the completion of his call, hangs up his receiver and waits to be called. The recording operator having written the necessary information on the toll ticket, forwards it to the line operator, who secures a toll line to the called office, rings, and when the inward operator answers, passes the details of the call, which are again recorded by the inward operator. The latter operator assumes the responsibility of obtaining the particular party; having done this she notifies the outward operator, who thereupon rings the calling subscriber. Both operators surpervise and time the call, entering on the tickets the length of conversation and both are responsible for the prompt release of the toll circuits after conversation ends.

The single ticket ring down method of handling a toll call is the same as the two-ticket as far as the recording of the call is concerned and up to the time of passing the call by the outward operator. The latter does not pass the details of the call, but simply the called number to the inward operator, who, without making a second ticket, rings the desired number. The outward operator announces the call to the called subscriber, and assumes sole responsibility of timing and supervising the call, and of releasing the circuits after conversation ends.

The operation of the single ticket call circuit method is similar to the single ticket ring down. It is faster in that the outward operator secures the called station over call circuit trunks to a *B* switching operator in the distant office, thereby eliminating the services of an inward toll line operator.

The "short-haul" methods are subdivided in to the "toll board" and the *"A-B"* method.

Under the former, the *A* or local operator receiving from the subscriber the number desired, passes the calling and called numbers directly to a toll line operator, thus eliminating the recording operator as a separate operator. The toll line operator records the call and after ordering the calling subscriber's line to be held on a trunk to the local switching operator, secures the called number as under the single ticket methods of operating.

Under the *A-B* method the toll operator is eliminated, the *A* operator recording the toll ticket and completing the call over a trunk to the distant office. She alone is responsible for supervising and timing the call. This *A-B* method may be on either a ring down or call circuit basis as may be most economical.

There are further refinements of these methods, in the way of "tandem" toll operation, etc., which are purposely omitted from this discussion, as it is impossible to go too much into detail, and the typical methods shown will serve to illustrate the processes described in the following:

Considering first the efficiency of labor involved in handling a toll call, Fig. 2 shows the relative requirements of operating labor under each of the above described methods.

Considering the production efficiency of central office equipment under the same operating methods, Fig. 3 shows the comparison of requirements in the way of switchboards and accessory equipment for operation under each method.

It will be noted that in case of both the central office labor and central office equipment, the "short-haul" methods are relatively more economical than the "long-haul" methods. Bearing in mind that the toll circuit efficiency is affected by many variables, as has been explained, chiefly volume of traffic, length of haul and circuit holding time, it is necessary to consider this factor in connection with the efficiency of labor and equipment. Obviously, to handle traffic on a "short haul" basis, requires more circuits than to handle the same traffic on the "long-haul" basis. It is necessary, therefore, to ascertain under what conditions it will be economical to apply the more efficient operating methods, considering all factors involved.

(To be continued.)

Sacramento, California, Merchants' Association Forces Pacific Bell to Make Rate Reductions.

After efforts extending over a year the merchants of Sacramento, Cal., have been able to secure a reduction in telephone rentals and have induced the management of the Pacific (Bell) Telephone & Telegraph Co., to grant them certain concessions for which they have been striving. By the provisions of an agreement now entered into, between the Retail Merchants' Association and the telephone company, the residents of the outlying districts in Sacramento and Oak Park will be permitted to install four party lines at a rental of $1.50 per month. Heretofore it has been almost impossible to get a telephone installed in the residental sections of these cities on account of the provision in the contract which required all four parties on a line to install at the same time.

It was also agreed to eliminate the extra charge of 25 cents for desk telephones, and a promise was made by the company that the long distance service would be improved and the charges reduced.

The first requests of the association for consideration of the proposed reforms were absolutely ignored, the courtesy of a reply not even being given. It was only when the merchants intimated that if an Independent telephone company should decide to invade the Sacramento territory it would receive their support, that the management of the company agreed to a conference.

The association asked a reduction in the long distance rate to San Francisco. The rate was advanced some time ago without notice, from 25 cents for a three minute conversation to 40 cents for one minute. The company granted the first request at the conference but the second was taken under advisement with a promise of a reduction. The representative of the company stated that a new system to San Francisco was about to be installed having from twelve to fifteen direct lines and that as soon as the improvement took place the time would be extended from one minute to three, while the charge would remain the same as at present.

Following are the rates agreed upon at the conference between the merchants and the company:

	Per Month
Business single line	$6.00
Business two-party line	3.50
Business extension	1.00
Residence single line	3.00
Residence two-party line	2.25
Residence four-party line	1.50
Residence extension, four-party	50

Spokane Home Establishes Information Bureau and System for Calling Patrons in the Morning.

The Home (Independent) Telephone Co., of Spokane, Wash., has about completed arrangements for an information bureau for the benefit of its subscribers in connection with a regular system for arousing patrons in the morning similar to that employed in hotels.

"One of the good-sized rooms on an upper floor of our building is being fitted up as an information bureau," said Traddeus S. Lane, president of the Home company recently. "There will be about a dozen girls engaged in this department. A library containing all kinds of information that the public might desire will be at their disposal.

"A large observatory clock will be there, and our patrons can secure the correct time day or night. Baseball returns will also be at the disposal of our patrons.

"One of the big features of this bureau will be the ringing up of our patrons in the morning. The system will be just the same as that used in a hotel. Patrons will call information in the evening, leaving the time at which they wish to be rung up. A record of all these calls will be accurately kept, and the patrons will be rung up at the times designated. If any one does not answer within 10 minutes a messenger will be sent to call. In Butte this system is worked and an average of 400 such calls are made daily."

Annual Meeting National Electrical Credit Association.

The National Electrical Credit Association held its twelfth annual meeting on June 8 at Toronto, Ont. Delegates and repesentatives from the Boston, New York, Philadelphia, Chicago and San Francisco associations were in attendance, as well as guests from Montreal and Toronto.

The total membership of the several associations reporting at the meeting was 478, an increase in membership of over 10 per cent in the past year.

Reports showed that the several associations have handled 59,020 credit items, and the total amount of adjustments effected, 37,252, involving $3,073,820.15. While the association is in no sense a collection agency yet, by its operation, it effected the adjustment of an average of fifteen claims per member, during the year, and secured for each an average of $985.73.

The chief value of the service is the promotion of mutual confidence among its members—the securing of uniformity and certainty in the customs and usages of the electrical trade, and the distribution among its members of credit information to save them from making unsatisfactory sales.

New Government Publication on Preservative Treatment.

William H. Kempfer, forest assistant, is the compiler of a circular entitled "Preservative Treatment of Poles" issued by the U. S. Department of Agriculture, Forest Service. This bulletin is compiled in part from previous publications of the Forest Service, namely Circulars 103, "Seasoning of Telephone and Telegraph Poles," by Henry Grinnell; No. 104, "Brush and Tank Pole Treatments," by Cargl G. Crawford; No. 136, "Seasoning and Preservative Treatment of Arbor-vitae Poles," by C. Stowell Smith; and No. 147, "Progress in Chestnut Pole Preservation," by Howard F. Weiss. It presents, in addition, results of more recent experiments, especially those of O. T. Swam, Forest Assistant, who is also the author of the design for open-tank pole-treating plants.

It contains much valuable practical matter in the shape of tables, descriptions, and illustrations, which should be in the possession of every person interested in obtaining the best results in outside plant construction. Copies will be furnished to telephone officials free by the Forest Service upon application.

Real troubles are not so many, nor often so great as we imagine them. Our imagination is a wonderful thing sometimes.

A Hollow Concrete Pole.

Various methods have been evolved for the construction of hollow concrete poles, but nearly all of them utilize a core or mandrel of some kind, around which to build the concrete shell. The one instance in which a core is not used is in a German centrifugal process of casting, says *Popular Mechanics* in its current issue.

Courtesy Popular Mechanics

Hollow Concrete Pole.

The tubular mold or shell consists of long wooden strips lined with sheet metal and linked together. In this is placed the steel frame for reinforcing the concrete. Then it is filled with a sufficient quantity of wet concrete, and the whole is placed in a lathe and rapidly whirled. The centrifugal force packs the concrete in a uniform manner against the walls of the mold, and, after hardening, the mold is removed and the finished product taken out.

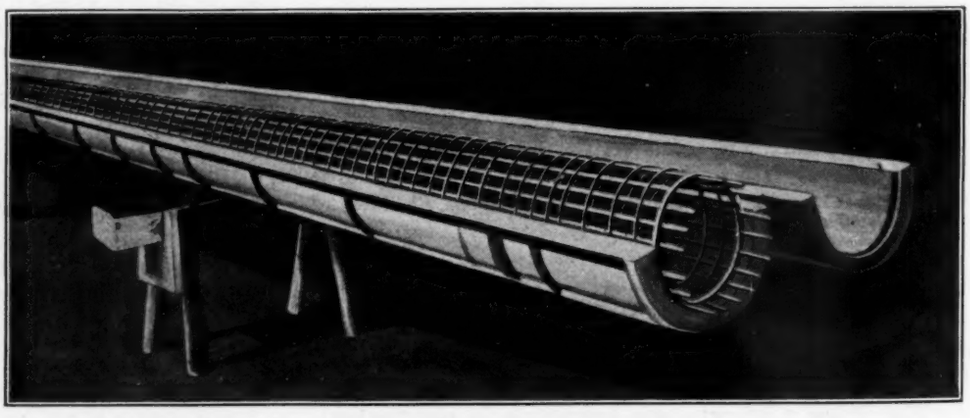
Another German Pole.

Poles of reinforced concrete for both high and low-tension electric circuits are finding an increasing demand in Germany, and Karl Roessle, in a recent number of *Beton und Eisen*, describes those used for the Hohenzollern Sportpalast, a large skating rink in Berlin. Because of the decay of wooden poles, the high price of iron poles and the constant attention required for their maintenance, the management decided to employ reinforced concrete.

The simplicity of the system used, the Wolle, made it possible to mold all poles in wooden forms at the site of the work. Both the making and the erection were accomplished without the use of machinery, and the initial cost was comparatively small, being about one-half that of iron poles.

The poles were materially lightened by adopting a tapered section, reducing the size from about 1.2 by 1.8 feet at the bottom to 0.46 by 1 foot at the top, and at equal distances for the greater part of the length holes were cut through, which not only reduced the weight, but also presented less surface for wind pressure in the direction of the smallest resisting moment.

The highest of the poles, which curved over at the top, was about 44.3 feet, of which 8.2 feet was in the ground, which brings the arc lamp about 32.8 feet from the ground surface. Heavy signs, suspended between posts, increased the bending moment at the ground level. It was necessary to provide for this. Therefore, a flat iron plate of rectangular cross-section, about 3 by 3.5 feet, was placed on either side between the ground and the pole extending from the surface of the earth downward. The greatest difficulty experienced was in placing the conduits in which to run the electric wires. These concrete poles were erected by means of wooden shear-legs 29.5 feet in length, and, although the total weight of each pole was approximately 9,259 pounds, they were raised without injury when but fourteen days old.—*Electrical Review and Western Electrician.*



echanics

Mold of Hollow Concrete Pole, Open, Showing Steel Reinforcing Frame.

Engineers Engaged on Plans for Constantinople Exchange.

Engineers left London early in the month for Constantinople, Turkey, to prepare plans and specifications for a 10,000 line system to be installed there.

John Scott is in charge of the engineering force, and F. Gill and W. W. Cook of the National Telephone Co. have been appointed consulting engineers.

The London *Electrician*, in commenting the work, says:

"The work Mr. Scott has in hand is one of many difficulties, as Constantinople is the most peculiarly situated of all European capitals. The city is divided by the Bosphorus, which is deep and has swift and variable currents, and, moreover, is much used as an anchorage. The European section is again divided by the Golden Horn, an arm of the sea over which there is no permanent bridge. In all parts of the city the streets are extremely primitive, narrow, winding and ill-paved, and many of them are precipitous hills. As no telephone service yet exists in Turkey, all modern facilities having been debarred by the ex-Sultan, there are no available data whereby to gauge the probable use of the service or the probable traffic which the system will be called upon to carry. The peculiar composition of the population of Constantinople, about one-half of which consists of non-Moslem races, Greek, Armenian, Jewish, and so on, makes the business part of the engineering problem one of much complexity. Three languages are current—Turkish, Greek and French—while many more are spoken, and the variety of local customs and practices is probably greater than in any other large city in the world. No exact statistics exist, but the population of the area is estimated at between 1,000,000 and 1,250,000 inhabitants. Means of communication are at present so primitive and expensive that a large demand for the telephone service may be anticipated. The Telephone Development Co. (Ltd.) has been formed for the purpose of carrying on the necessary work pending the organization of the Ottoman Telephone Co., which will construct the plant and operate the service."

Uses Long Distance Telephone to Talk to Parrot.

While visiting in Cincinnati, Ohio, recently, Mrs. W. H. Wall, of Atlanta, Ga., it is reported, employed the long distance telephone to converse with her pet parrot in Atlanta, which was in poor spirits. The receiver was held to the bird's ear and he was perched near the mouthpiece. It is said that when Mrs. Wall spoke the parrot responded, and speedily lost its fit of despondency.

Practical Letters from the Readers

Federal Company Makes Record Installation After Fire.

A record breaking installation was made by the Federal Telephone & Telegraph Co., in Ithaca, N. Y., recently.

On May 27, fire, which started in the terminal room, completely destroyed the exchange, and then came a remarkable feat in re-establishment of service and rebuilding of an exchange.

The interior of the building was completely destroyed. The floors in the exchange room were burned away, and the equipment fell into the basement. The charging and ringing machines in the wire chief's room were also destroyed. The records of the company, however, were intact, being kept in a fireproof safe.

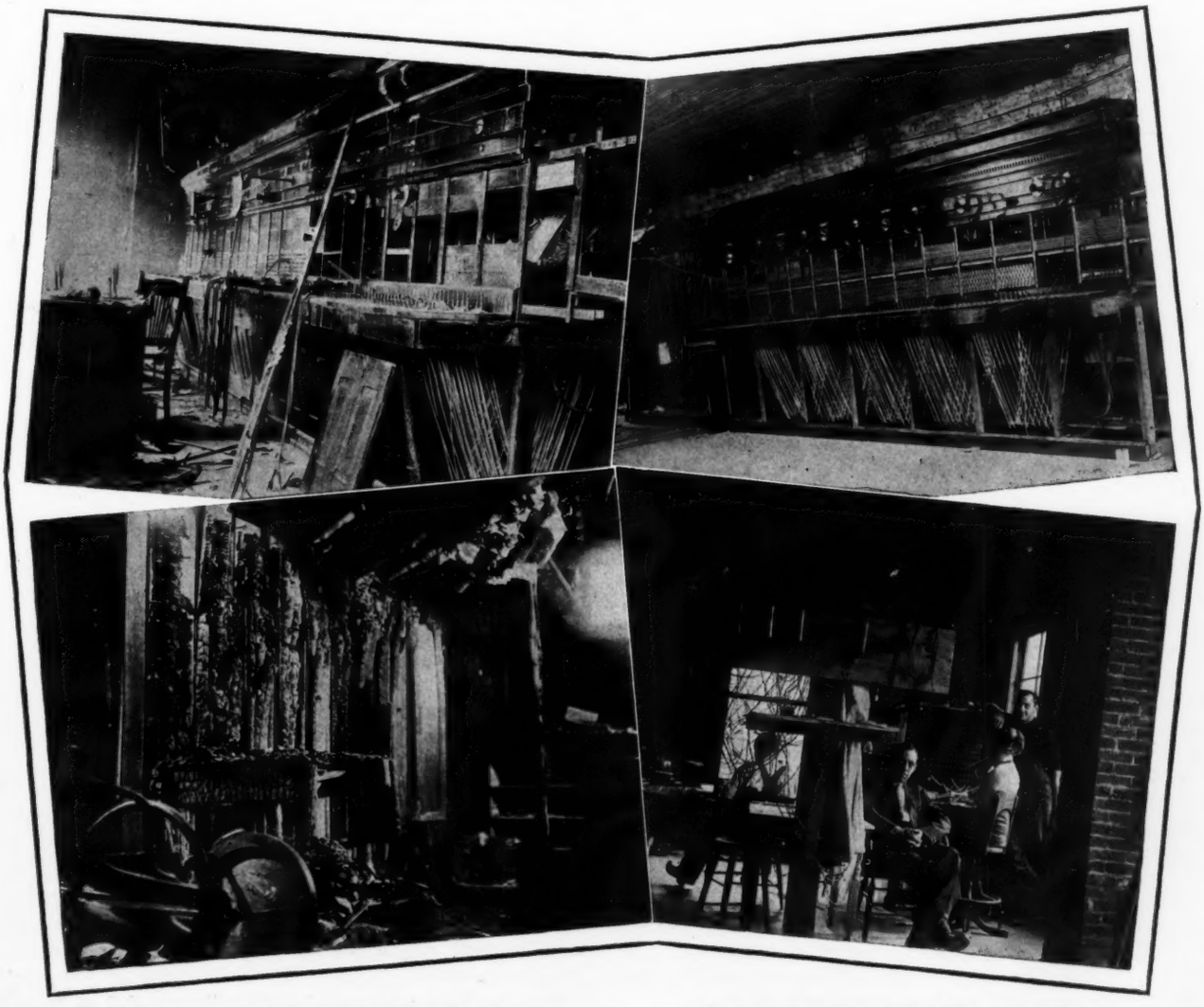
Rooms were secured directly across the street from the old building. The switchboard was installed on the third floor and general offices on the second floor. A new exchange building will be erected as soon as possible. The bulging portions which show in the illustration of the damaged wire chief's room are burned rubber. The temporary magneto board through which the toll, farmer and phantom lines were cut in is also shown. Some of the Morse circuits were cut in and in use ten hours after the fire.

The Century Telephone Construction Co. was called upon for a new board, and at 5:20 p. m., May 27, it was shipped via special train, arriving in Ithaca at 10:30 p. m. The board was rushed to the new exchange room, which had been secured during the day, and by six o'clock Sunday morning, twenty-four hours after notification of the fire, the board was unpacked and the frame set up in the new location.

The construction men, in the meantime, were busy digging trenches and laying conduit, and by Monday morning had pulled in over 2,000 feet of 400-pr. cable. On Tuesday morning 4,000 straight splices were finished and the outside cables were in the office awaiting connections with the inside cables.

While cablemen and linemen were busy on the outside system, the installation of the switchboard and power plant progressed rapidly. On Friday evening the batteries were charged and Saturday morning, one week after the fire, there were over 600 subscribers working on the new board in a complete exchange. A number of rural and toll lines, entering the Ithaca exchange were cut into a temporary emergency board and service started within thirty hours after the fire..

Considering that the Ithaca exchange has in operation 3,000 subscribers on full common battery multiple switch board equipment, 4,000 wires entering the office, it is a remarkable piece of work to restore service in so short a time.



Old Switchboard Taken Shortly After the Fire.
Wire Chief's Room, Showing Interior Cable Terminal.

Part of New Board Installed Day After Fire.
Temporary Magneto Toll and Rural Board.

The work was facilitated very greatly by the prompt and efficient manner in which the Century Telephone Construction Co. responded in getting the material shipped promptly, and by the express companies which rushed the shipments through.

An Ingenious Argument in Behalf of "Rubbering."

Having read the articles on rural line "rubbernecks" published in previous numbers, I herewith give my experience:

For more than seven years I have had a telephone on a rural, grounded, bridging party line having from fifteen to twenty-eight subscribers. This line is used as a trunk line between the central offices of two towns of over 1,000 inhabitants each, where nine-tenths of the rural people have telephones. I have listened in, or "eavesdropped," many times with the particular object in view of learning the effect upon subscribers who are talking.

I learned that the parties of a rural party line usually live in one neighborhood, are relatives or friends, and associate with one another. These people seldom object to relatives or friends listening in while they talk, and quite often it happens in such cases that the eavesdropper and the parties talking learn something of value to each, which would not have been learned if there had been no eavesdropper.

In business it is usually good practice to advertise when one wants to buy or sell anything. Party lines with eavesdroppers are desirable advertising mediums, which, when used generally, give satisfactory results. For instance, the poultry man buys poultry over the telephone. The eavesdropper "butts in" and sells his poultry also. The hog buyer buys most of his hogs over the telephone upon the description given by the farmer. The sale only holds good if the description is correct, and the description generally is correct. It is usually desirable to have witnesses when making a contract. A telephone line with eavesdroppers is, therefore, suitable for making valid contracts.

In regard to eavesdropping interfering with the operation of the grounded, bridging, party telephone line it often happens that, when some party is being rung, receivers are taken down before the party answers and good ringing is then impossible. The resistance of the talking instruments, being much less than the resistance of the bells, shunts so much of the ringing current that poor ringing is the result, causing much ringing and loss of time. If the call is made through a central office and the party does not answer, the calling party will often accuse the operator of giving poor service. The operator will say "rubbernecks," but the called party eventually learns of the call, and remembering that he was at home, may think his telephone was out of order.

Camp Point, Ill. H. F. Joeckel.

Farmers Pay Up on Lockout Lines.

In your issue of June 3, I find a request from a Minnesota manager for information about lockout systems. Having operated the Baird system for several years, my experience may be of some value to those who have had nothing to do with lockout systems.

This company now has 156 Baird lockout telephones connected with the exchange under my direction and has the same number of satisfied farm subscribers,—subscribers who are so pleased with the service that they always meet us with smiles and a good word for the service. As soon as the lines now under construction have been completed, we will have over 200 farm subscribers, all using the Baird lockout system.

No company can afford to satisfy any patron at a loss, or furnish service at a rate that will not show a margin of profit. The farm subscribers connected with this exchange pay $18 per year, quarterly in advance. This rate enables this company to construct the lines in the best manner possible, thus reducing to a minimum the cost of maintenance.

For the months of January, February, March and April of this year, the maintenance cost per station was $0.11, all cases of trouble being cleared promptly.

The operating expense per station is no more than for the ordinary bridging type, and the operation is more rapid.

The first cost of the instrument is some greater than the bridging type, but that ever present "rubber" cannot consume battery by listening in, as it is impossible for a locked out subscriber to hear the conversation. And what a rest for the manager, to have eliminated that neighborhood quarrel that invariably exists on all party lines.

Do farmers object to secret service telephones because they cannot signal one another without calling "Central"? No, indeed! By this system, the control of the line is taken from twelve or more people, and given to a competent operator who has control of the line at all times, thus insuring to each subscriber a fair measure of service at all times.

We would find it impossible to replace our present type instruments with the ordinary bridging type even at a much lower rate. In this territory the lockout has come to stay, for the farmer as well as the business man generally knows a good thing when he sees it.

The installation of this system has materially increased the farm toll business.

Generally, if service rendered is good, collections will be good, for most farmers are willing to pay for what they get if the quality is all that they expect. I have never known our quarterly collections to be less than 100 per cent.

Not only are our farm subscribers pleased with this service, but our city patrons are pleased with it, and I am sure that this company has made no mistake in adopting this class of service for the farmers.

I would be pleased to receive personal communications from managers on this subject.

W. E. Hutchens,
Hartford City, Ind. Manager, The United Telephone Co.

Another Possible Cause of Trouble Discussed June 3.

A query and answer in TELEPHONY of June 3 gave information about a false busy test on a "B" board. The reply stated that the winding of the busy test relay had probably become crossed with the busy test ground.

The circuit shown was very like the circuit in use in New York. In our case this trouble is nearly always caused by a short-circuited cord which puts the ring battery on the tip, which is normally connected to the busy test strap. It is usually located by plugging up the cords on the position in trouble into blank multiple jacks until a cord is found which clears the trouble. I have found that an easier way is to touch the sleeve of each cord in succession with the tip of the first cord. This causes the lamps to burn very dimly until the bad cord is reached, when the lamp on it will light to normal brightness.

This is due to the operation of the busy test relay on the defective cord, which is thus cut off the busy test ground strap. The other lamps will not light brightly on account of the extra battery on the ground strap and on the tip of the cord used to test with.

Summer Static Trouble in Manitoba.

E. J. Tillotson, of Hamiota, Manitoba, says, in part of a letter renewing his subscription:

"I am glad to see that some other people have trouble with 'static' the same as we are. These 'static storms' are liable to show up almost any old time, but are more prevalent in midwinter and summer after a long dry spell. A hard wind with either loose snow or sand will develop enough 'static' on rurals to put them out of commission for a short time. The metallic rural ringing ground seems little better off than a straight metallic.

"We use here a high resistance coil grounded at center to clear this trouble and it does it very well.

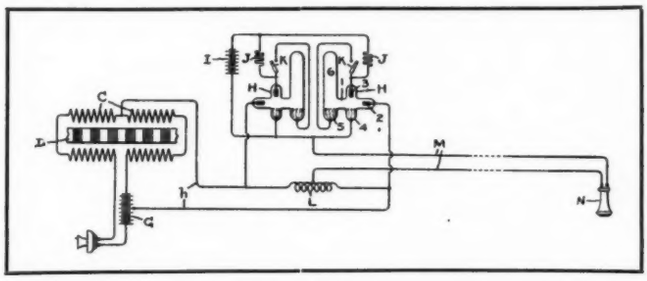
From the Patent Office

Max W. Zabel

Telephone Relay and System.

E. F. W. Alexanderson, Schenectady, N. Y., patent 996,445, June 27, 1911, assigned to General Electric Co., New York.

In a telephone relay a high frequency alternator of the inductor type is used. The field and armature windings are combined into one, it is said, to avoid magnetic leakage between the field and armature windings. In the circuit, as here shown, all the coils both armature and field are connected in series



and in the primary circuit, which includes a transmitter and the source of current, *G*. Portions of the winding *C* are oppositively connected with respect to other portions so that their induced voltages are in opposition with respect to the primary circuit and therefore have no effect on that circuit. Conductors *h* are connected at points of equal potential and lead to rectifiers *H, H*. A storage battery *I* is connected between the electrodes 3 and 4. A condensing chamber 6 is located near electrode 5.

After the mercury arc rectifiers have been started, if alternating pressure is impressed on the electrodes 2 and 4, current will flow from the half waves during each time electrode 4 is cathode, and will not flow during the other half periods, so that each rectifier, therefore, permits passage of current of one polarity only. By means of the reactive coil *L*, connected across the two rectifiers, a continuous uni-directional current flows in the secondary circuit *M*. The primary current passing through the winding *C* produces a varying magnetization of the inductor, which has a wave shape and amplitude corresponding to the vibration in the transmitter. The variation of the reluctance of the magnetic circuits of the coils *C* by the movement of the inductor induces a voltage of a frequency higher than that of the primary current, and corresponding in amplitude to the instantaneous value of the primary current, and this high frequency amplified current is first rectified and then impressed on the secondary circuit.

Telephone System.

H. P. Clausen, Chicago, Ill., patent 994,719, June 13, 1911. Assigned to Stromberg-Carlson Telephone Mfg. Co., New York.

In a system of telephony a hand generator is used at the substation for calling the central operator whose attention is attracted by means of a lamp. A drop gives the disconnect signal. Relays in the line circuit control the line lamp.

Method of Amplifying Electric Currents.

L. W. Southgate, Worcester, Mass., Patent 992,817, May 23, 1911.

The repeater disclosed herein consists of a generator having field coils which are energized by voice currents. An armature mechanically rotated under the influence of these field coils transmits the current generated therein to a series of coils so wound as to produce a rotating field. These coils, together with the armature, are mechanically mounted on the same rotating shaft. The armature and these coils are then rotated in the opposite direction with a speed equal to the speed of the rotating field. These auxiliary coils which receive their current from the armature, due to their being rotated in the opposite direction to and at the same speed as the rotating field which they generate, therefore produce a stationary field, whose effect is inductively transmitted to a stationary coil connected with the outgoing circuit. It is claimed amplifications without distortions may be easily obtained from this repeater.

Conversation Meter For Telephone System.

G. W. Lorimer, Piqua, O., patent 989,529, Apr. 11, 1911.

In a telephone meter for use with automatic systems, the subscriber must push a button after the called party has answered in order to get connection and to properly actuate the meter. When the called party answers this can be heard by the calling party in the receiver, but this receiver is shunted so the sounds are only faint and the receiver cannot be used as a transmitter. The transmitter is also cut out of circuit until the operator pushes the meter-operating button, which also relieves the receiver of the shunt. The automatic call sending means are likewise locked against operation during the manual actuation of the conversation meter.

Relay.

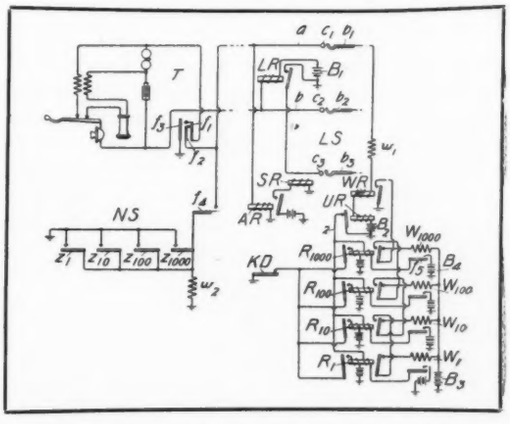
C. G. Ashley, Chicago, Ill., patent 990,183, April 18, 1911.

In a telephone repeater the two circuits between which the repeating is to be done are each provided with a plurality of coils circularly disposed, and oppositely wound. The coils of the two circuits alternate, but are not inductively related. An inductor, rotated at high velocity, reimpresses amplified wave currents from the incoming circuit, it is claimed, on the outgoing circuit. Eddy currents set up in the inductor, it is claimed, give this.

Automatic Exchange System.

W. H. Matthies, Antwerp, Belgium, patent 996,500, June 27, 1911, assigned to Western Electric Co., New York.

In an automatic system the selectors are advanced and switched over the same circuit which acts for a holding cir-



cuit for a through connection, this being done in such a way that these selectors are advanced through changing the resistance of a primary closed circuit, the switching, however, being effected by opening the circuit. If subscriber *T* desires to call another subscriber, the removal of his receiver actuates relay *AR* to connect in the relay *SR* to thereby actuate the line finder *LS* at the same time line relay *LR* connects the contact C_3 of the line finder to earth.

Line finder *LS* now being engaged with the line of the call-

ing subscriber, the line a is then connected over resistance w_1 to the selecting relay WR, and switching relay UR after some automatic operations not vital herein have taken place. Subscriber T has adjusted his number switch NS, which has springs that are released one after the other to send the required call, the release of the adjusted contact serving to actuate the selecting relay WR. The switch KD is operated when, either after or before the complete operation of this system, it is desired to restore the relays R_{1000}, R_{100}, R_{10} and R_1 to their normal, de-energized condition.

Cooling Device for Telephone Transmitters.

C. E. Egner, Stockholm, and J. Gunnar Holmstrom, Saltsjo-Storangen, Sweden, patent 989,588, April 18, 1911.

A telephone transmitter is set forth herein in which the diaphragm is placed under initial tension. It is claimed that by so arranging the diaphragm much greater variations in current can be had, and thus greatly increased results obtained. It is also stated, however, that this greatly increased current causes sufficient heating effect whereby the diaphragm quickly loses its elasticity, and thus loses the effect of the initial straining. To obviate this, cooling means, preferably in the form of a water-carrying coil, are provided to maintain a temperature under which the diaphragm may maintain its proper resiliency.

Telephone Repeater.

C. G. Ashley, Chicago, Ill., patent 991,928, May 9, 1911.

A telephone repeater is set forth herein which will enable the conduct of conversation over a single telephonic circuit in both directions. The instrumentality employed for impressing the inducing winding with the current that is to be modified by the incoming telephone current is a form of the so-called uni-polar dynamo or generator, the terminals of which are connected with the terminals of the inducing winding (of very low resistance) to supply thereto current of comparatively large volume and small pressure. It is stated that a uni-directional current of ten amperes at 0.5 volt gives good results. A battery and an exciting coil producing a field are used to furnish this current and the armature of the generator rotates within this field. When the armature rotates and no conversation is taking place a current of constant volume and pressure is impressed upon the inducing winding. During conversation the flux density of the field is changed to cause an amplified re-impression of the voice currents.

Method of Propagating Telephonic Currents.

C. G. Ashley, Chicago, Ill., patent 994,361, June 6, 1911.

A repeater device set forth herein is intended to increase conversational qualities of circuits having large capacity. An independent source of current is impressed on an inducing winding and telephonic current is superposed on this current.

The instrumentality used is a form of uni-polar dynamo whose terminals are connected with the terminals of an inducing winding. The field is also separately excited. When the armature is rotated at a uniform velocity, current of constant volume and pressure is impressed on the inducing winding. The telephonic current then modifies this current. The induced winding is in inductive relation to the inducing winding and it is claimed that the mechanical rotation of the armature furnishes the power to step-up the telephonic currents by reason of the inter-action between these windings and the field of the generator.

Armature.

S. A. Duvall, San Francisco, Cal., patent 994,303, June 6, 1911, assigned to J. S. Nash, Chicago, Ill.

A magneto generator armature is the subject-matter of this application, and its object is to provide an H-Type armature in which the pole extension may be increased without diminishing the winding space. It includes a core member having segmental pole pieces and disks of non-magnetic material secured to each end of the pole pieces. Segmental closure members engage and fit in slots in the pole pieces and end disks.

Signaling Device for Telephone Systems.

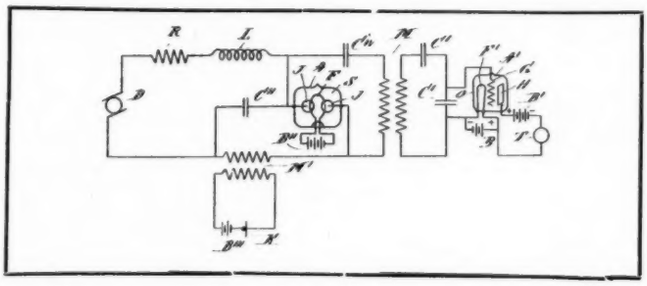
A. J. Dunton, Ketchikan, Alaska, patent 995,849, June 20, 1911.

A receiver and transmitter are placed in close proximity for signaling purposes, to take the place of the ordinary call bell. A relay at each substation controls a local battery circuitt through the transmitter. Adjustable means are set forth to vary the pitch of the sound emitted so that the sound may be shrill and clear or subdued as may be desired. A swiching device is also provided at each substation to control the relays of other substations on the line.

Amplifying Feeble Electric Currents.

L. DeForest, New York, N. Y., patent 995,126, June 13, 1911. Assigned to DeForest Radio Telephone Co., New York.

In a system of wireless telephony D is a source of direct current, R and L are resistance and inductance respectively.



Condensers are indicated at C', C'', C''' and C^{iv}. Transformers are shown at M and M'. The transmitter is shown at K in association with the battery B'''. The discharger A has the electrodes J for maintaining an arc which establishes a continuous source of high frequency electrical oscillations known as the singing arc. The filament F is heated by the battery B''. The oscillation detector O includes an evacuated vessel A' having the heated filament F', the grid G and the plate H. The circuit arrangements will be obvious.

Electric Switch.

H. Fisher, Packerton, Ind., patent 995,528, June 20, 1911.

The invention herein consists in the provision of a switch for connecting one or more telephone instruments together to an extension bell, or for cutting in and out different sections of a party line. The switch has a rotatable element of the toothed variety, and a dog for holding the element in different positions. The telephone instrument has its receiver hook provided with a lever and a plunger, which has a latch that engages the dog to actuate it to release the switch.

Auxiliary Telephone Receiver.

W. Schwarzhaupt, Cologne, Germany, patent 989,814, April 18, 1911.

The ear piece of a receiver is connected by means of a tube to a reverberator adapted for use on the opposite side of the head. Specific details of the construction of the reverberator are claimed herein.

Telephone Support.

C. E. Flynn, Vale, Ore., Patent 993,975, May 30, 1911.

A receiver support comprises a split sleeve, capable of being mounted on the stem of a desk telephone. A receiver supporting arm is mounted on the sleeve and is provided with various auxiliary devices.

Legal Cases and Decisions

By A. H. McMillan

House Moving in Minnesota.

Will you kindly state to me just what the Minnesota law has to say in regard to house moving for wires and cables. Can you also state just what is supposed to be the necessary height for wires in order to compel the parties to pay for the work or the damages as the case may be? Can you refer me to a few cases on this matter?

House moving in Minnesota is governed by the same law that exists generally. If there is not any way for the house to be moved except across the street occupied by wires and cables, and the party desiring to move it has permission from the proper authorities to use the street for that purpose, telephone companies are obliged to move their wires and cables to let the building pass. If, however, the party moving the building can use a side street or alley just as well, he must do so.

The telephone company may require a bond from him to pay all expenses and hold the company harmless from injury and from damages to third person due to the negligence of the house mover. If the latter refuses to give said bond, the company is entitled to an injunction to restrain him from interfering with its wires. There is no specified height for wires above which the company may compel the house mover to pay for the work or damages. He must pay for such work and damages, no matter what the height of the wires or cables are. See Nagle vs. Hake, 101 N. W. 409; Pierson vs. Tri-State Tel. & Telg. Co., 126 N. W. 1091; Northwestern Telephone Exchange Co., vs. Anderson 98 N. W. 706. McMillan on Telephone Law, section 240.

Care of Wires Over Roof.

Where a telephone company maintains its wires over the roof of a building, it must exercise ordinary care to secure them, so as not to injure a third person lawfully working on the roof of the building, having occasion to move the wires in the prosecution of the work. Such was the holding of the Court of Civil Appeals of Texas in a case where a man was employed by the owner of a building to repair a roof on which a company maintained two electric wires. In making the repairs, it was necessary to loosen the wires from the comb of the building. The first was removed in safety but on the release of the second a guy wire which held it in position broke from its fastening, causing the wire to come in contact with a trolley wire and giving the workman a severe shock. The cause of the accident was that the guy wire was insecurely nailed.

The court held that the workman was not negligent as a matter of law in working on the roof and in loosening the wires. Panhandle Telephone & Telegraph Co., vs. Harris, 136 S. W. 1129.

Right of Abutting Land Owner Who Buys After Erection.

One acquiring property abutting on the street subsequent to the erection of telegraph and telephone lines may not recover damages to the property resulting from the presence of the lines before he acquired title, but he may recover damages caused by any subsequent change in the construction of the lines or additions thereto, if such change increases the burden on the street. That is the holding of the Supreme Court of Texas in an action brought against a telephone company by a land owner for damages and a mandatory injunction against the telephone company to require it to move its cables so that they would not come in contact with his shade trees.

It appeared in the case that the main part of the company's structure was built before the land owner acquired the lot on which his residence stood, and that only slight alterations had been made in the two years next preceding the bringing of suit. The company's structure did not interfere with or incommode public travel more than usual in such cases and was erected before the land owner planted his trees. Damages given the plaintiff by the jury were sustained by the supreme court because of the alterations in the line subsequent to his purchase, but the mandatory injunction was denied because he did not show that extreme or very serious damage would ensue from the withholding of that relief. S. W. Telephone & Telegraph Co., vs. Smithdeal. 136 S. W. 1049.

Reorganization Contract.

A holder of a judgment against the Commercial Telephone Co., of Texas, constituting a lien on its property, agreed that trustees holding the property with the corporation should be re-organized, and that he should receive the amount of his judgment in bonds of the re-organized corporation which should not exceed $150,000, of which at least $50,000 in cash should be put in extensions or additions to the property. The corporation was re-organized as the South Texas Telephone Co., but it was found that it could not comply with its promise to invest $50,000 without sacrificing the interest of the corporation in the sale of the bonds. The agreement to invest $50,000 designated no extensions or betterments. The judgment holder brought suit against the telephone company for damages for its failure to comply with its promise to give him the amount of his judgment in bonds of the new corporation. The Supreme Court of Texas held that the telephone company was not liable because the damages which might arise out of the transaction were so vague and indefinite that they could not be ascertained. The judgment in favor of the plaintiff was reversed and rendered in favor of the telephone company. South Texas Telephone Co., vs. Huntington, 136 S. W. 1053.

Duties of Georgia Telephone Companies to the Public.

A corporation holding itself out as furnishing telephone service to the people of the community is a public service company, and is charged with the duty of furnishing for a reasonable compensation to an inhabitant of the locality served by it the usual telephone services for legitimate purposes. Such a company cannot discriminate between members of the public desiring the telephone service, either as to manner of service or as to rates.

This duty of furnishing service, the Court of Appeals of Georgia holds, has not been expressly declared by a statute in the state, but exists as a matter of general law in force therein, by virtue of the state's adoption of the common law, and also by reason of a valid rule of the state railroad commission. Southern Bell Telephone Co. vs. Beach, 70 S. E., 137.

Recognizing the City's Right to Fix Rates.

Where a telephone company voluntarily enters into a contract with a city conferring on the company rights in the public streets and in consideration thereof fixing maximum rates for service, the company recognizes the right of the city to fix the rates and may not repudiate a part of the agreement limiting the rates on the ground that the municipality is not authorized to fix them. So held the New York Supreme Court in the case of Buffalo Merchants' Delivery Co. vs. Frontier Telephone Co., 112 N. Y. S., 862.

From Factory and Salesroom

Conventions: North Dakota, Bismark, August 15, 16; Mississippi, New Albany, July 17, 18.

The McCloud Adjustable Spring Back Chairs.

It is impossible to have an active brain in a tired body. The McCloud Back Rester is declared by the makers to be a foe to fatigue, as it can be instantly adjusted forward or backward to meet conditions.

Telephone operators become very much fatigued when compelled to sit for hours in the same position on rigid chairs. They give better service to patrons when using Back Resters, as the back is supported in the most comfortable position, to suit the operator, and just where it is needed or desired.

The Pony Trade Mark.

All chairs are equipped with rests for the feet. The No. 135 also has arm rests. The chair here illustrated is No. 134. It has a cane seat, the back being upholstered in leather. This is a very popular design and exceedingly practical.

Model No. 134.

Fretful, careless operators are expensive to a company and cause a loss of patronage through dissatisfied subscribers. If you want your operators to give prompt and efficient service, make them comfortable by giving them McCloud Back Resters.

The Davis Chair Co., Marysville, Ohio, the manufacturers of the McCloud chairs, has not only a home market, but has a large export trade. Its product goes all over the world.

The pony trade mark was photographed from life, to show the strength of the chairs manufactured by this company. Every chair put out by it bears this trade mark, asserted to be a guarantee of high-class work and material. Write for prices and descriptions of the full line.

Some Good Ironite Literature.

The Paragon Sellers Co., of Chicago, in sending out its price list to the trade, accompanies it with a folding card, very attractively prepared, setting forth the merits of Ironite. The lower portion of the card may be detached and utilized as a private mailing card, ordering wire, or asking for free samples of Ironite.

Two instances are given in this folder which evidence the value of the company's product. They are as follows:

"The North East Kansas Telephone Co., Hiawatha, Kanasas, sent a couple of linemen up on the roof of a high building. They shoveled snow and thick chunks of ice down on to the drop wire running into the building. One big chunk of ice landing on the center of the drop, ripped the brackets from the building. What else happened? Nothing. The drops were Ironite and they kept right on doing business. The drop wire was put back into place and was found to be in as good condition as when first put up.

"Really that wasn't much of a test for Ironite, either.

"Here's one from Seattle. The Independent Telephone Co. laid 3,000 ft. under Lake Washington about fourteen months ago. Today that cable is giving perfect satisfaction. About three months ago they laid 10,000 ft. more, 200 ft. deep, in the same lake. That last stretch of cable is doing perfect work alongside of a copper wire made to order and costing about $40 per thousand feet. That's saving money, isn't it?

"What other kind of drop wire could have stood such a test? What more trying tests could have been put upon Ironite than the two above? Isn't it worth trying out in your plant, too?"

It is worth while to be on the mailing list of the Paragon Sellers Co., and worth while, too, to investigate its product.

The Aurora Cable Clip.

A new cable clip has just been brought out on the market, and it is hoped that everyone interested in this class of work will give the following careful attention.

The Aurora Cable Clip.

John Davis, well acquainted with telephone men in all parts of the country, has spent the major portion of his life in telephone work and has had ample opportunity of ascertaining what was needed.

The Aurora Cable Clip is the outcome of one of his ideas which was thoroughly tried out, before the general public was informed of it. This clip is simplicity in itself and if for no other reason will appeal to the men having occasion to string wires and cables. One of its principal points of merit is the easy manner in which it can be attached or installed.

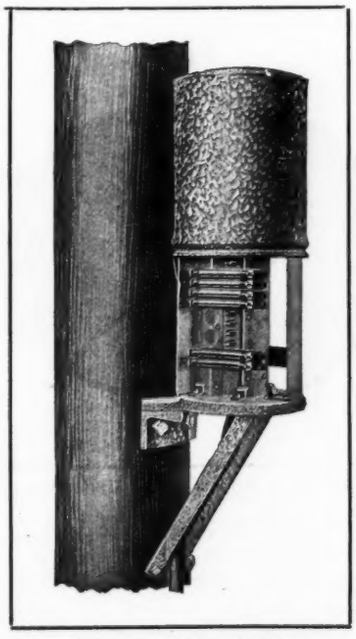
The clip is formed of but one piece of metal, reducing complications to the minimum, and is comprised of two nesting hooks and a locking tongue, intended to give the hooks a secure fastening. When it is desired to install the clip no tools are necessary, it is said, as the fingers will admirably answer that need. The nesting hooks are pressed together around the cable, one of the hooks intercepting the messenger strand, the latter movement tending to interlock the hooks. The locking tongue, which is merely a projection of the clip itself, is bent over the nesting hooks and rigidly fastens them together.

It is claimed that the use of this clip absolutely prevents crystalization, due to vibration, and keeps the cable from slipping. The clip is so constructed that it will always retain its shape and strength. It is made for any sized cable.

Particular care should be taken when writing to designate the number of cable pairs and gauge of wires for which clip is intended. All interested parties desirous of learning more about this clip can do so by addressing the Aurora Cable Clip, 169 Middle avenue, Aurora, Ill.

Cook Pole Cable Terminal, Type S-18.

Frank B. Cook, of Chicago, is now putting on the market a new and improved protected porcelain pole cable terminal, of the self-contained pot-head type. It is known as Type S-18. The cable box is of one piece of porcelain with all surfaces thoroughly glazed, insuring the highest possible insulation, together with fireproof and lasting qualities. It is arranged for unit or individual protector mountings and furnished complete with cable lugs or connecting posts only, enabling the complete installation of the cable with the terminal.



New Cook Terminal.

Connecting posts are of the well-known hollow type, bringing all permanent connections to the outside of the cable box, where they are permanently soldered to place. The terminal is furnished with galvanized iron cover held under spring tension in either raised or lowered position, affording easy access to all connections, and making the terminal weather-proof.

Formed steel fanning strips and face-plate support the cable box, relieving all strain from the porcelain part, and reducing breakage in shipment to the lowest possible point. The terminal is equipped with a self-soldering nozzle, placed at an angle to insure alignment of the cable with the two pole braces, which also serve as a cable guard. It requires a very small amount of compound, and reduces the cost of installation proportionately.

The protector units (Type H-29) are attached to the terminal lugs, or connecting posts, by means of split German silver spring contacts, a continuation of the line or cable fuse clip, and neither bolts, screws or nuts are required. Cook's standard copper tipped line fuses, specially treated self-cleaning carbons and celluloids are used. They are furnished with screw and washer or soldered contacts for drop wires, soldered contacts being standard and furnished unless otherwise specified.

Prices will be given upon application to Frank B. Cook, Chicago.

"Pyrene" Stops Fire in Main Frame at Waco.

A fire in the main frame of the Waco, Texas, Independent Telephone Co. was quickly stopped by the use of the extinguisher "Pyrene," which was introduced into the Independent telephone field by the Electric Appraisal & Inspection Co., of Cleveland, Ohio.

The story is briefly told in a letter to James B. Hoge, president of that company, dated May 11, 1911, as follows:

"We had occasion to use one of your Pyrene extinguishers on April 12th, when an arc came in on our main frame at the Waco exchange. The arc was readily extinguished by the use of a few ounces of 'Pyrene' and without damage to the equipment or interruption of our service.

"We have the extinguishers at each exchange and would not be without them. No exchange of importance can afford to be.

"(Signed) J. B. Earle, General Manager."

Some Good Telephone Wire Literature.

It would seem that wire would be a difficult subject to present attractively to the prospective purchaser, yet the Indiana Steel & Wire Co., of Muncie, Ind., has succeeded in doing this with a letter and a bit of printed matter accompanying.

"Perfection in wisdom by mankind will never be attained," the letter begins. This does not sound much like wire, but the "line of talk" holds the reader until he reaches the distinct assertions further along that "our telephone wire is best according to tests and comparisons with other makes," and others of a like nature.

The circular is a regular Fourth of July celebration, being done in red, white and blue, and carrying the flag at the top. The application of the flag is summed up in the concluding clause: "If you have not yet used a telephone wire that means the maximum of sensitive transmission and the minimum of trouble and up-keep, place your order now with the Indiana Steel & Wire Co.—color bearers in the matter of integrity of manufacture, efficiency of service and solicitude for your interests."

Increasing Booth and Pay-Station Receipts.

The present agitation against insanitary conditions is centering rapidly on the unpleasant and unhealthful condition of the average telephone transmitter. People who take thought know that the telephone in general use is dangerous to a degree because of the presence of filth and germs of malignant diseases. It is, however, more than fear of disease transmission that frequently keeps people from using the average booth phone—it is a natural revulsion against the filth and fetid odors that emanate from the mouth-piece.

It is quite possible to overcome this fear and revulsion by disinfecting the telephone and displaying a card stating that the telephone is clean and safe to use.

It would be an interesting and profitable experiment for companies having booth and pay-station telephones to try this plan and see if the receipts are not greatly increased by catering to public opinion in the matter of germs and disease transmission.

The Home Equipo Co., of Pleasanton, Kans., will furnish for a two cent stamp enough Red Cross Telephone Disinfectant and display cards to give this a fair trial, believing that it will furnish an agreeable surprise to all concerned in the way of increased receipts.

The Star Expanding Anchor.

The Miller Anchor Co., Norwalk, Ohio, reports extraordinary success in the introduction of its new Star Expanding Anchor, shown in the accompanying illustrations. The

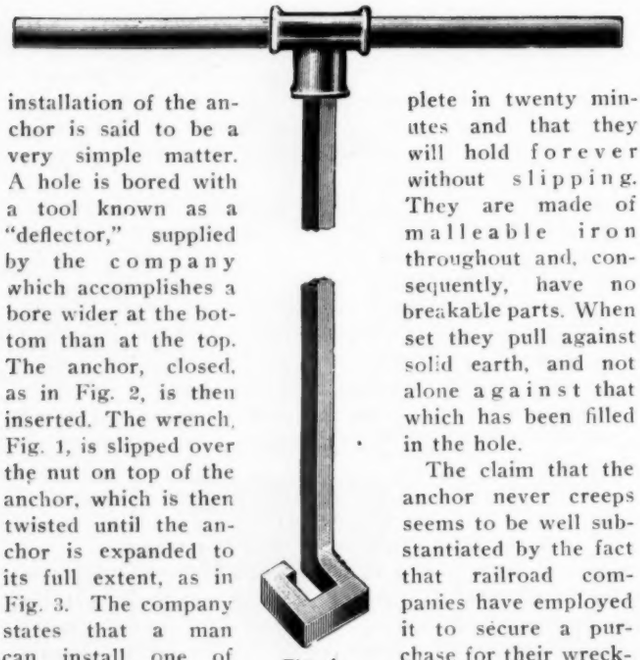


Fig. 1.

installation of the anchor is said to be a very simple matter. A hole is bored with a tool known as a "deflector," supplied by the company which accomplishes a bore wider at the bottom than at the top. The anchor, closed, as in Fig. 2, is then inserted. The wrench, Fig. 1, is slipped over the nut on top of the anchor, which is then twisted until the anchor is expanded to its full extent, as in Fig. 3. The company states that a man can install one of these anchors complete in twenty minutes and that they will hold forever without slipping. They are made of malleable iron throughout and, consequently, have no breakable parts. When set they pull against solid earth, and not alone against that which has been filled in the hole.

The claim that the anchor never creeps seems to be well substantiated by the fact that railroad companies have employed it to secure a purchase for their wrecking tackle, in which capacity it must, of course, sustain a strain to which no telephone is subject. It is said that the solid bessemer steel rod will break before the anchor will pull up.

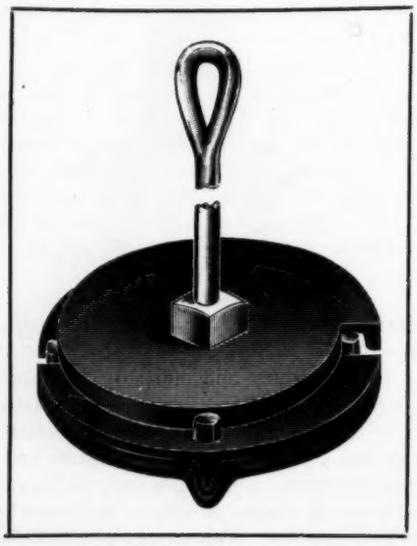


Fig. 2—The Expanding Anchor Closed.

As an introductory measure, with every initial order placed with the company for anchors, either in large or small quantity, will be shipped one of the wrenches shown in Fig. 1, for which latter no charge will be made. Address the Miller Anchor Co., Norwalk, Ohio.

The Blackburn Specialty Co., Cleveland, Ohio, states that the superior features of its Blackburn Ground Clamps are being recognized and approved by leading telephone engineers, not only in the states, but in many foreign countries. The company has recently shipped large orders to South America, England and Cuba. The company announces that its sales for the first half of the current year have more than doubled those of the corresponding period last year and declares that to be convincing evidence of the merits of the device.

The Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y., is mailing to the trade a folder listing special prices on certain series and bridging wall telephones. The folder illustrates the various types included in the special offer, and states that orders will be accepted at these special prices regardless of quantity or contract. Haste in covering orders at the figures given is urged, and private mailing cards form part of the folder enabling orders to be filled without delay.

The Rome Wire Co., Rome, N. Y., has issued for July what we believe to be the prettiest calendar of its series. This lovely girl is presenting two ripe cherries, daintily held in her pearly teeth, as the poet might say, and must certainly have offered a strong incentive to the beholder to collect that fruit. If you have not received a copy of this calendar, send for it. It's a beauty.

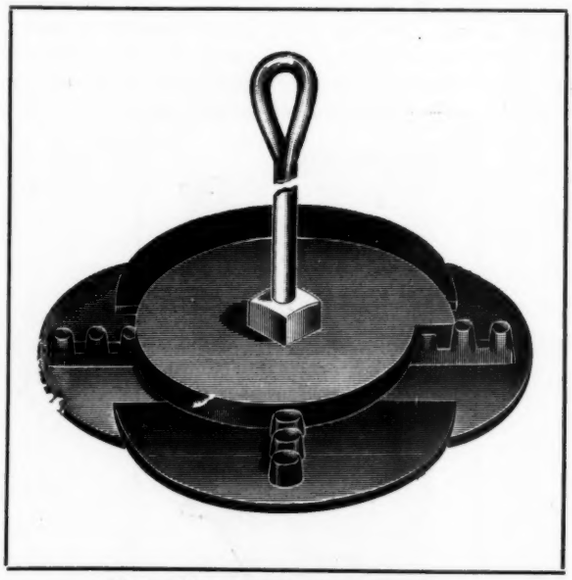


Fig. 3—Star Anchor Fully Expanded.

The Randall Telephone Manufacturing Co., of Boston, is now a full-fledged member of the Railway Telegraph & Telephone Appliance Association. The Randall repeater, transmitter and telephone arm have aroused general interest among railway superintendents of telegraph and the company proposes to devote special attention to this class of trade in future.

Bell Unpopularity in Kansas Shown by Pole Tax.

The Ottawa, Kansas, city council has passed an ordinance taxing the poles of the Missouri & Kansas (Bell) Telephone Co., a semi-annual charge of twenty cents each.

The Bell company has been paying a tax for some time at Lawrence, but at Ottawa has neglected to do so, and the manager, L. L. McKim, has been arrested by officers of the police court and a date set for a hearing.

At both towns the Bell franchise has expired, and there is a growing opinion at Ottawa that the city ought to secure itself against possible Bell extortion in the future by requiring it to accept a long term franchise.

The Bell exchange at Ottawa claims 543 telephones, and the Independent has 1,950.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

WESLEY R. ELLIS, of Ashtabula, Ohio, is the new manager of the People's Telephone Co. Mr. Ellis is a graduate of Cornell University.

JOHN A. MORIARTY, manager of the Indianapolis Telephone Co., has been appointed on the advisory commission to Mayor Shank of Indianapolis.

J. C. BUCKLEY, government telegraph and telephone inspector of New Zealand, is in the United States inspecting various telephone systems.

C. A. REED, superintendent of the Ohio division of the Bell Telephone Co., was tendered a banquet at the Southern Hotel, Columbus, at which 75 Ohio officials of the company were present. Mr. Reed was recently made superintendent of the company's properties in Ohio, Michigan, Wisconsin and Illinois.

W. T. FRIGANZA, who for sometime past has acted as manager of the Interior Telephone Co., Vienna, Ill., has removed to Cairo, Ill., and accepted the management of the Central Union Telephone Co.'s exchange in that place. During the four months Mr. Friganza was in charge of the Vienna system the place was rebuilt and over 5,000 feet of cable installed.

C. C. TERHUNE, manager of the Platte, So. Dak., exchange of the Dakota Central Telephone Co., is spending a vacation in Charleston, W. Va., and Talmage, Ky. TELEPHONY has been informed that Mr. Terhune has formed a life contract with one of Charleston's young ladies, but her name has not been learned. Mr. Terhune's many friends will join with TELEPHONY in wishing him much happiness.

OBITUARY.

NORMAN JOHNSON, who for many years was manager of the Shelbyville, Ind., Telephone system, died recently. He was 65 years of age.

NEW COMPANIES.

SAN FRANCISCO, CAL.—The Perpetual Germ Proof Telephone Mouthpiece Co. has been incorporated at San Francisco with a capital stock of $75,000. The directors are E. J. Leitner, F. Rittigstein, J. L. A. Jannet, M. T. Rapp, and M. M. English.

ODIN, ILL. (Marion Co.)—The Odin Telephone Exchange Co., capital $15,000 par value of shares $10, has been incorporated by James M. Dace, Chas. E. Sloan, and Wm. H. Farthing.

SPRINGFIELD, ILL.—The Odin Telephone Exchange Co. has been recently incorporated by James J. M. Dace, Chas. E. Sloan, Lafayette Somerville and J. M. Dace, Odin, Ill. The capital is $15,000.

AUGUSTA, ME.—The Northern Maine Telephone & Telegraph Co. has been organized and chartered. The present capital is $10,000. The stockholders named are Harry L. Sawyer, president; Percy G. Barrows, treasurer, both of Greenville, where the company was organized, and Harry E. Newton of Jackman. The company will operate from Bingham to The Forks, thence along the Canada Road to the boundary line between Maine and Canada. A second line will run from Bingham to Kineo Station; and another from Shirley to St. Francis. The system will be extended to cover the entire timber country in northern Maine.

EUREKA, MONT.—The Tobacco Valley Telephone Co. has been organized, the central to be at Eureka. Lines will be built to Gateway, Rexford, Fortine and Trego. The officers are: P. N. Benard, president; J. W. McCalder, secretary; L. J. B. Chapman, treasurer; directors, W. C. Fewkes, Harvey Young, S. J. Dahlberg, Charles Sheldon, A. T. Purdy, William Parcell and M. P. Shenefelt.

ATHENS, MO.—The Athens Telephone Co. has been chartered. Capital stock, $25,000. Incorporators are: J. A. Jones, Jno. Murchison, E. A. Carroll, S. M. Cain and E. Henderson.

RALEIGH, N. C.—The Marion Telephone Co., which will have its principal office at Marion and operate a line from that city to Old Fort, was chartered. Authorized capital, $10,000. The incorporators are N. B. and J. D. Blanton, and W. Arthur McCall, all of Marion.

GREENWOOD, N. Y.—A new telephone company has been organized with the following officers: Seymour W. Dennis, president; A. L. Lewis, Jr., vice president; E. M. Scribner, secretary and treasurer; F. L. Warriner, Fred McMindes and W. O. W. Slocum, directors. The company will be known as the Jasper & Greenwood Independent Telephone Co.

OSWEGO, N. Y.—Incorporation papers of the Oswego Telephone Co. were filed recently. The capital stock is $100,000 divided into 1,000 shares of $100 each. The directors for the first year are Fred T. Cahill, Joseph T. McCaffrey, Henry A. Lavere, John Ryan, Thomas O'Connell, John K. Lynch, Sr., and James H. Chrystal.

FRANKLIN, OHIO.—The Farmers Mutual Telephone Co. has been chartered, capital $2,000. Incorporators, C. N. Baird, Oswald Kummer and V. D. Hammond.

SOMERSET, OHIO.—The Farmers Mutual Telephone Co. has been incorporated by John Colyer, G. W. Richardson and J. T. Murphy.

MAXVILL, O. (Perry Co.)—The Maxvill Telephone Co. has been chartered by the secretary of state. Capital $10,000. Samuel S. Mohler, George Vanatta, John Bell, James H. Goodline and Herman A. Wilson are the incorporators.

COUNCIL HILL, OKLA.—A charter has been issued to the Farmers' Telephone Co., of McIntosh county, with headquarters at Council Hill; capital, $3,000; directors, R. L. McCoy, J. F. Sanders and W. H. Standley, all of Council Hill.

PRAIRIE CITY, ORE.—Articles of incorporation have been filed by the Blue Mountain Mutual Telephone Co.

BENTLEYVILLE, PA. (Washington Co.)—The Bentleyville Telephone Co. has been chartered. Capital, $10,000. The incorporators are: T. A. Hetherington, E. E. French, U. G. Ames, William Murray, F. P. Watson and C. K. Fry, all of Bentleyville.

WHITE POND, S. C.—O. N. Courtney, W. B. Owens, O. L. Weeks and J. W. Black are the incorporators of the White Pond Telephone Co. Capital, $2,000.

ATHENS, TEX.—The Athens Telephone Co. has been incorporated with a capital of $25,000. J. A. Jones, J. W. Murchison, and E. A. Carroll are the incorporators.

LEBANON, TENN.—Citizens of Lebanon are organizing for the purpose of forming a telephone company. The company will be called the Lebanon Home Telephone Co. Capital, $15,000, and will be a part of the Home Company of Memphis. A franchise will be asked for. The following board of directors was elected: J. C. Sanders, R. P. McClain, F. C. Stratton, I. J. Dodson, W. M. Harkreader, Edgar Green, C. F. Mikles, J. W. Sellars, Edgar Waters, J. T. McClain, J. M. Barbee, T. S. Dillon, J. J. Askew, R. H. Haralson, L. G. Armstrong, H. H. Thomas and A. J. Casey. The board of directors elected the following officers: C. F. Mikels, president and general manager; J. T. McClain, vice-president; J. J. Askew, treasurer, and H. H. Thomas, secretary.

STRAHL, TENN. (R. F. D. from Persia).—The Tennessee River Telephone Co. has been incorporated by C. M. Smith, R. D. Kellar, J. R. Roark and J. R. Sanders. Capital, $5,000.

KNAPPS COULEE, WASH.—The Knapps Coulee Telephone Co. is the name of a rural telephone company being organized. The company will build a line through Knapp's Coulee to Chelan, which will accommodate 15 ranches. George W. Wilson is president and M. A. Almandinger secretary.

LAVALLE, WIS.—The Lavalle Telephone Co. has been incorporated by S. A. Towne, Edmund Tordorff, and Elmer Gardner. Capital, $15,000.

ELECTIONS.

PHOENIX, ARIZ.—At the annual meeting of the Overland Telephone Co. the number of directors was increased from seven to eleven and the following men were elected: B. T. Hurley, C. H. Pratt, Frank T. Alkire, Isaac T. Stoddard, Charles Goldman, Redmond Toohey, and Celora M. Stoddard of Phoenix, B. J. Schweppe of Tempe, David Connor of Jerome, J. W. Weatherford of Flagstaff, and A. C. Webb of Roosevelt. At a meeting of the directors, the following officers were elected: Isaac T. Stoddard, president and general manager; C. H. Pratt, vice president; Frank T. Alkire, secretary and treasurer; H. H. T. Glessner, superintendent, and H. A. Parsons, local manager.

COLUMBUS, IND.—At the annual meeting of the stockholders of the Citizens' Telephone Co. the officers were re-elected as follows: William Fortune, Indianapolis, president; Charles S. Norton, Indianapolis, secretary and treasurer; John L. Hosea, Columbus, manager.

DOWAGIAC, MICH.—The annual election of officers of the Home Telephone Co. resulted as follows: President, C. L. Fowle; vice president, L. L. Lawrence; treasurer, W. F. Hoyt; secretary, Eugene Gilbert; general manager, M. W. Briggs.

ROLLINGSTONE, MINN.—The Mt. Vernon Farmer's Telephone Co. held its annual meeting recently, at which all the directors and officers were re-elected. The company has purchased a new switchboard for the Lewiston exchange. The directors for the ensuing year are: Fred Frey, president; Peter Kreidermacher, vice-president; Wm. Drenckhahn, secretary; Wm. Haase, treasurer; Henry Stutzrien, Wm. Markwardt, Wm. Thompson, Geo. Beyer, and Geo. Daniel.

MUNCY VALLEY, PA.—The Sullivan and Muncy Creek Telephone Co. held a meeting at Beaver Dam and the following officers were elected: Alvin Fulmer, president; C. E. Crawley, treasurer; J. P. Miller, secretary; J. W. Moran, auditor.

In the Rural Line Districts

We knew they would come to it. The Willshire Telephone Co. announce that hereafter the office will have a continuous service. Sunday or any old time. Miss Edna Weimer, chief operator, called us up, Wednesday morning, and informed us and said she wanted everyone who had been kicking for continuous service to talk their heads off now.—*Willshire (Ohio) Herald.*

We feel a little proud this week over the fact that the Farmers' Mutual Telephone company secured a franchise Monday night. Perhaps we should say pleased, as we do not claim any credit for the granting of the franchise. It was granted by the councilmen for the reason that they considered it just and right and that there was no reason why it should not be granted. Yes, we are pleased.—*Haddan (Kan.) Clipper.*

The telephone lines are in the worst condition they have even been since they were constructed. You can go to any line and hear people talking all over the county. Say! don't you think it would be a good time now to get out and straighten those lines up, so you can get somebody you want and not be cussing the centrals because they don't answer the rings they never get. Lets wake up and be alive for once anyhow.—*Guthrie Center (Iowa) Guthrian.*

The material for the Yukon-Waltz telephone line arrived here Wednesday and work has been started. D. H. Keller and Ed. Baum have been appointed bosses of the line. We look forward for the trolley line as the next improvement of the town.—*Greensburg (Pa.) Tribune.*

J. W. Watkins is putting up a new telephone line, dividing one of the lines that was overloaded. He hauled out poles last week.—*Eagle Grove (Ia.) Gazette.*

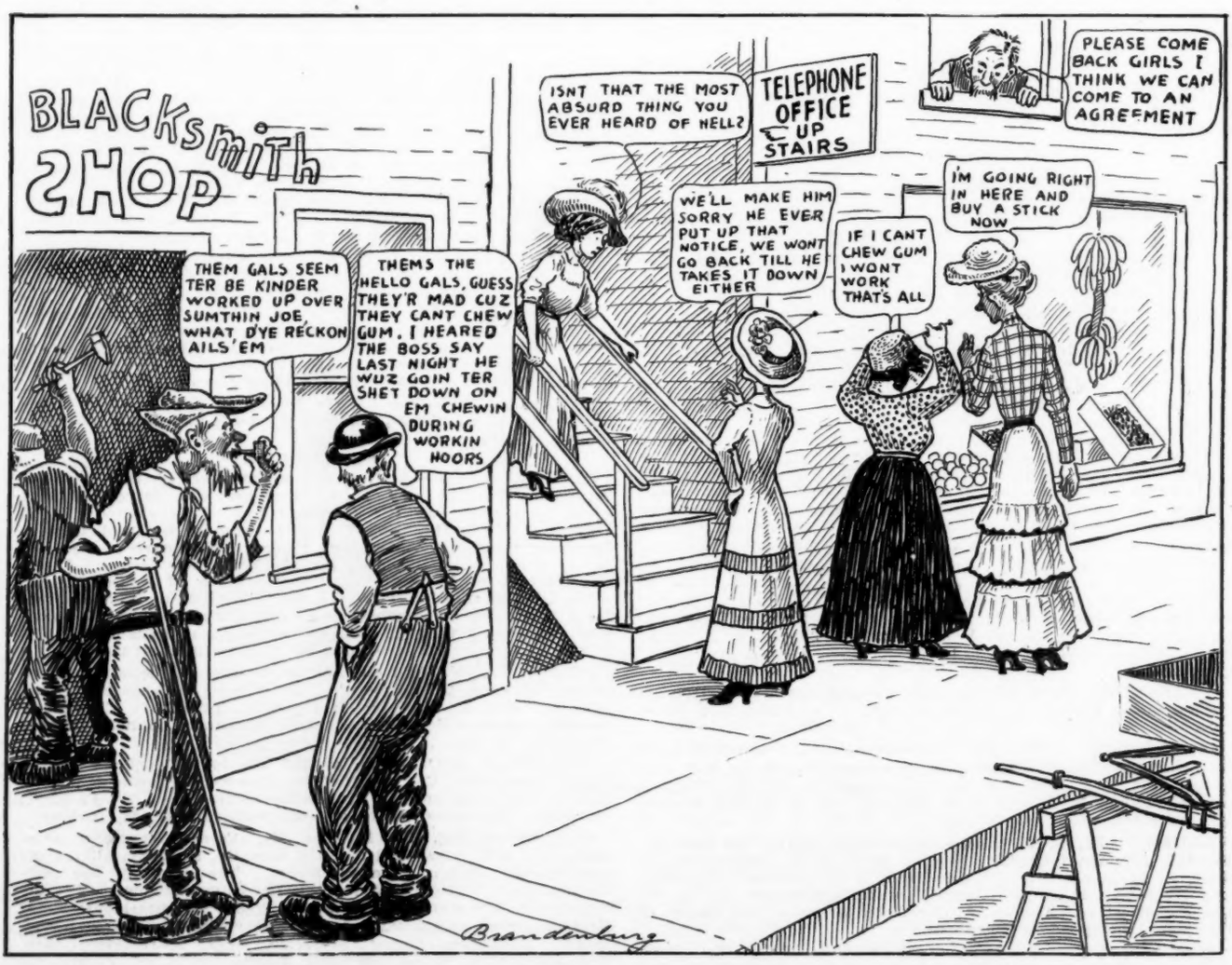
The farmers southwest of Spruce have organized a telephone line and will build to the Spruce switchboard. Dick Keeble has a phone installed.—*West Deepwater Letter in Butler (Mo.) Times.*

The Agency Plains Telephone company has purchased 40 miles of wire for their new line from Madras to Mecca and for the branch lines which are to serve the farms of the stockholders.—*Madras (Ore.) Pioneer.*

A gang of telephone men were at work here last week setting new poles and doing other work along the line between Marshalltown and Tama.—*Tama (Ia.) News.*

The telephone poles are being set this week and all supplies for the new exchange are here.—*New England Letter in Abilene (Kan.) Press.*

Powwatka, this county, now has telephone communication, the forest service having completed a line from a farmers' line north of town to the J. A. Woods place, on Powwatka ridge.—*Wallowa Dispatch in Spokane (Wash.) Review.*


BLACKSMITH SHOP
THEM GALS SEEM TER BE KINDER WORKED UP OVER SUMTHIN JOE, WHAT D'YE RECKON AILS 'EM
THEMS THE HELLO GALS, GUESS THEY'R MAD CUZ THEY CANT CHEW GUM. I HEARED THE BOSS SAY LAST NIGHT HE WUZ GOIN TER SHET DOWN ON EM CHEWIN DURING WORKIN HOORS
ISNT THAT THE MOST ABSURD THING YOU EVER HEARD OF HELL?
TELEPHONE OFFICE UP STAIRS
WE'LL MAKE HIM SORRY HE EVER PUT UP THAT NOTICE, WE WONT GO BACK TILL HE TAKES IT DOWN EITHER
IF I CANT CHEW GUM I WONT WORK THAT'S ALL
I'M GOING RIGHT IN HERE AND BUY A STICK NOW
PLEASE COME BACK GIRLS I THINK WE CAN COME TO AN AGREEMENT
Brandenburg

The first stringent rule ever given in this county by a telephone company was issued today. An order was given prohibiting all operators from indulging in chewing gum, eating candy and even drinking while on duty without being relieved.—*Linton Dispatch in Terre Haute (Ind.) Star.*